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THE INTEGRATION OF FEDERAL AND NON-FEDERAL RESEARCH
AS A WAR PROBLEM

By

Richard H. Heindel

Prepared for the Science Committee of the
National Resources Planning Board



JULY 1, 1942

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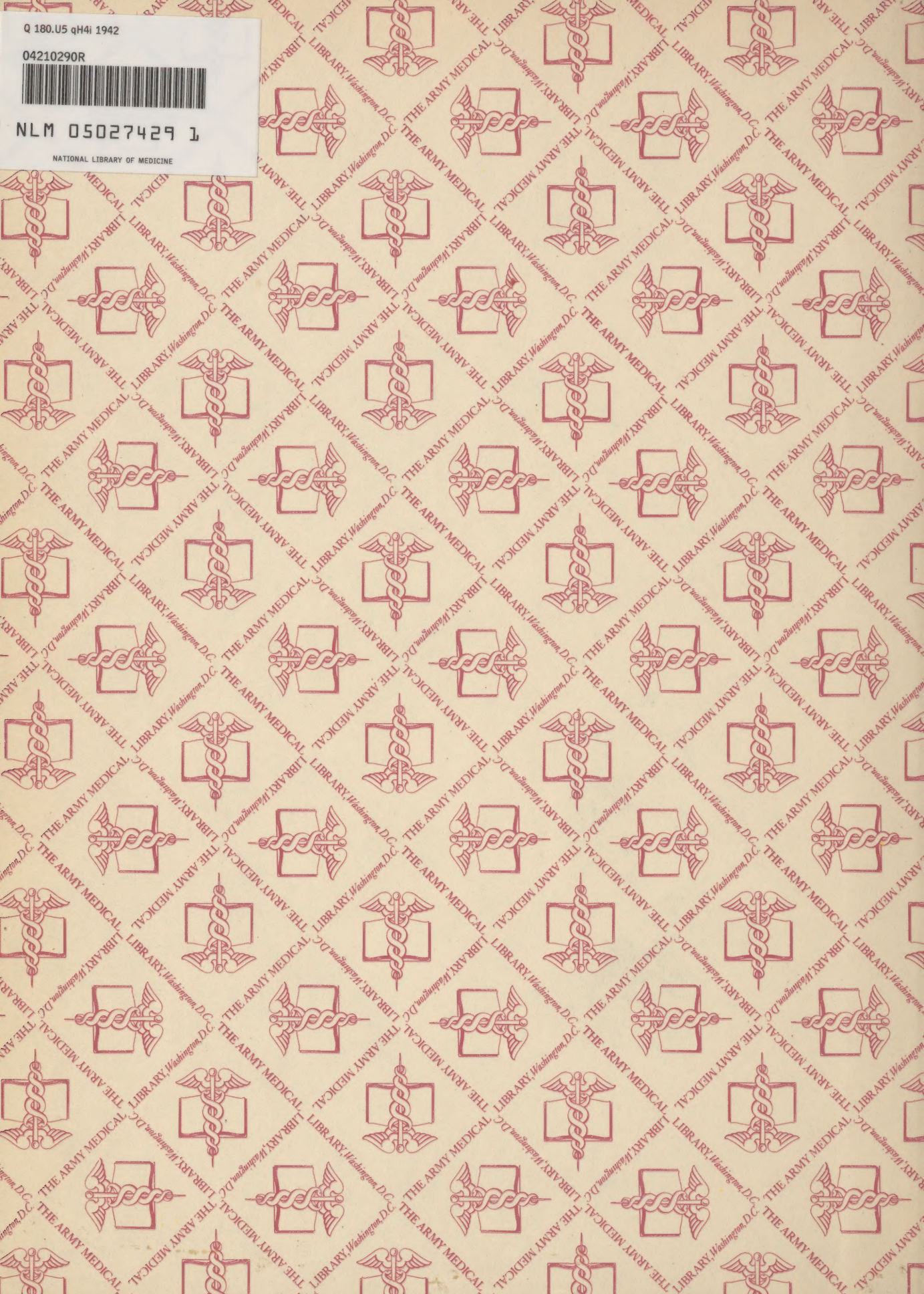
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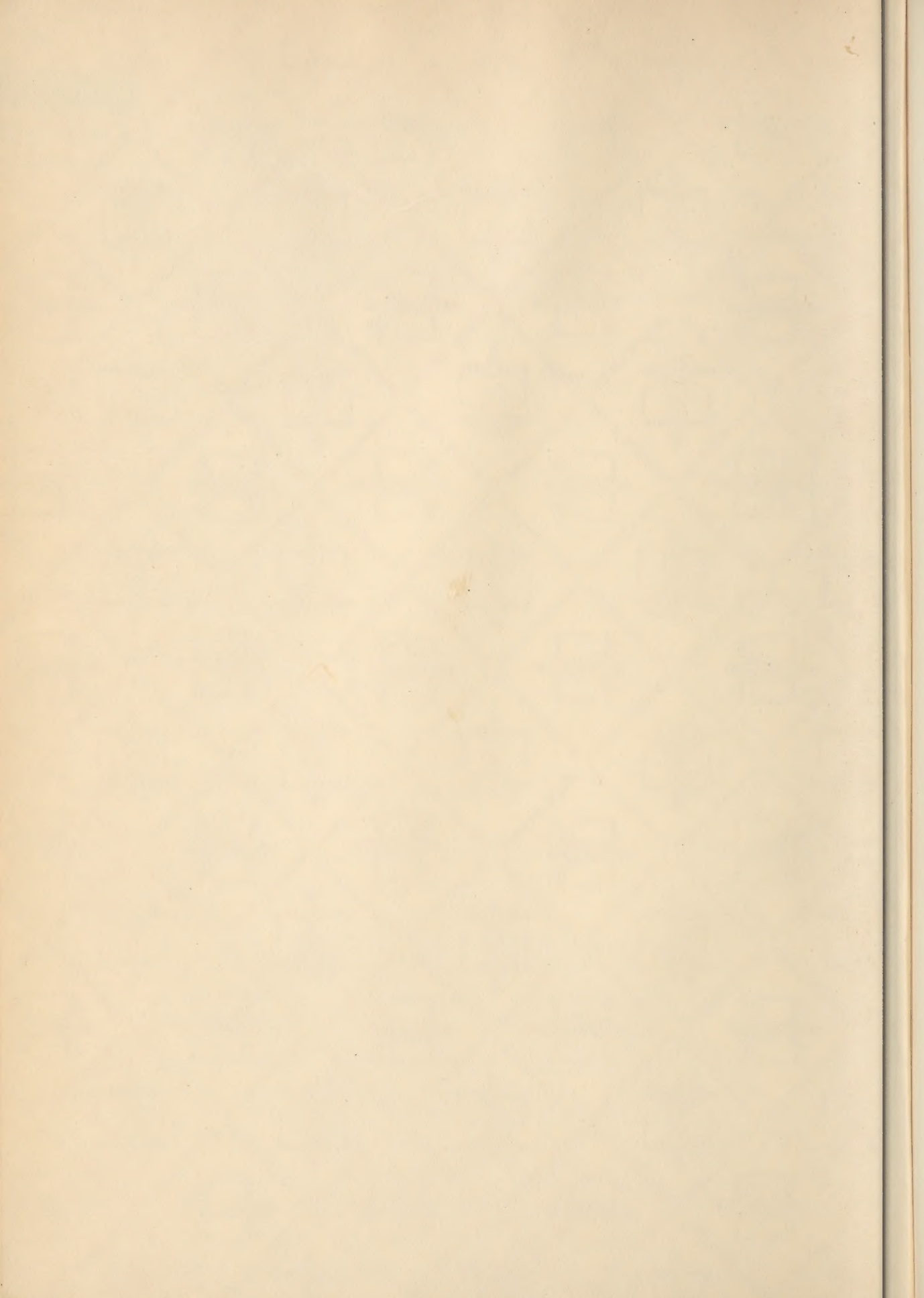
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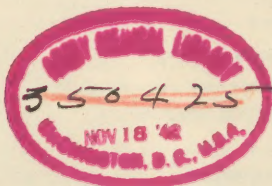


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AS A WAR PROBLEM ; 5

By

Richard H. Heindel
Consultant

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NATIONAL RESOURCES PLANNING BOARD

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SUMMARY OF FINDINGS

1. The integration of Federal and non-Federal research facilities has become a war problem of the highest importance, especially in view of the limited number of scientific specialists and the protection of the nation's research structure, now and in post-war reconstruction.
2. There has been an extensive development of decentralized research, especially in science, to implement the Government's war research program.
3. The Federal Government has been developing rich and valuable patterns of procedure and cooperation with all kinds of responsible research agencies which have proved useful during the war and which can be further extended. The types of research suitable for farming out are almost unlimited.
4. Federal agencies have farmed out research primarily because of economy and the advisability of using existing facilities and personnel not otherwise available. As shown in the report, the procedure has broad implications and by-products for planning, training, national prestige, the protection of American Scholarship, etc.
5. Contracting and cooperative research programs are affected by the existing expert personnel; the fields of study, the nature of the problems; by the structure of Federal and non-Federal agencies, and by the community of interest -- or lack of it -- of agencies willing to serve the nation as a whole.
6. The scheduling of research, always a difficult task, is more difficult under war conditions. Not all Federal bureaus or private agencies have wanted or achieved a balanced program for themselves. Contracting cannot be an easy remedy under such circumstances.
7. The achievement of a desired balance in the Government's fundamental and applied research program, as well as the nation's, raises difficult problems of coordination in the solution of which scientists and scholars must share. Cooperative research programs and contracting will be but one important device to achieve symmetry.
8. Where the Federal Government seriously needs more facts and knowledge for the best conduct of its affairs, cooperative procedures may be indicated.

9. Nearly all organized research groups have been affected by the war effort without sufficient attention being paid to the net national research gain or loss in the process of building up the Federal services. However, there remain, in spite of continuing dislocation, available private facilities that might be tapped by contracting or by cooperative research.
10. Enough is known about the procedures for using non-Federal research agencies to undertake and extend practical operations. This might be done piece-meal, or in trouble-shooting fashion, problem by problem or field by field, as the circumstances dictated.
11. Generally, the procedures developed have successfully freed research activity from subordination to policy-making and policy enforcing.
12. Significant farming out depends on more coherence and direction in the formulated needs of the Government, possibly through conferences, inter-departmental, inter-bureau committees, and a flexible intermediary agency.
13. Blending the use of the long-range type of private research with Federal needs subject to a rigid time limit is a major problem.
14. Quick adjustments to changing needs have been possible in cooperative research enterprises.
15. The obstacle of the confidential nature of certain official data has been greatly exaggerated and can often be overcome by several devices.
16. The collection of research data, which can usually be well-defined, also warrants more extensive cooperative arrangements.
17. The advance review and approval of research projects, which make possible a timely cooperation in technical advice, have been useful.
18. Many of the reasons for and against contracting with non-Federal facilities would apply almost as strongly to Federal inter-agency, inter-departmental cooperation.
19. New programs and major changes in Federal policy often should indicate to private research agencies the desirability of special research activities.
20. The demands for certain types of research may encourage within the university and elsewhere, a greater use of inter-departmental, interdisciplinary approaches to research tasks.
21. The use of outside agencies has been facilitated by the existence of organized councils and associations of scientific specialists.

22. Post-war studies have been considered by several agencies a suitable opportunity to develop cooperative research in industry, universities, and elsewhere.
23. Cooperative research has been decided upon in some instances as one practicable way of attempting a fruitful synthesis of the conclusions of research specialists, administrators, and laymen throughout the country.
24. It is possible that more adequate provisions could be made for projecting research as between our Government and private research agencies and those of our Allies.
25. The problem of larger and more permanent Federal support in the direction of a high standard of research has a direct bearing on contracting viewed as a supplementary device, and because the issue will undoubtedly be revived after the war, and in different form, partly because of the war-time experience with farming out.

INTRODUCTION

Scope of Inquiry:

The Science Committee recommended in 1938 "That research agencies of the Government extend the practice of encouraging decentralized research in institutions not directly related to the Government and by individuals not in its employ." A modern government needs vast amounts of data and knowledge, and can draw upon the nation's total research output which may, however, be motivated by considerations other than specific government needs.

The war has prompted this inquiry into what might be called the "farming out" of research problems by the Federal Government, or, if there is a more or less formal agreement, perhaps including some compensation from Federal funds, what might be called "contracting" or "sub-contracting" of research. The process may range from a casual hint as to Government needs by a responsible official to a carefully formulated, major project supported by departmental funds.

This inquiry gives some attention to various types of cooperative enterprises inasmuch as they develop a background suitable for contracting. The now extensive cooperation in research and in sharing research results among Government agencies is mentioned only incidentally. There will be noted the variety of procedures which have been used, or might be devised, to supplement the Government research program, without the complete dislocation of the nation's research structure.

The Need for Farming Out:

During the emergency and war periods, the Government has attempted to meet the bulk of its research needs by developing and expanding its research services, and has drawn upon significant proportions of the nation's scientific personnel. It is expending funds beyond the capacity of private research resources.

The Government, in spite of its increased personnel, cannot supply all of its research needs. This thought has been implicit in many of the remarks which have indicated that a greater use might be made of non-Government talent by formal or informal contracting. Some of the opinions go even further in implying that the Government may already have drawn off more researchers than it can absorb intelligently, thus creating a net loss to the nation's research output as a whole. Those who would not be so critical will nevertheless maintain that, by using modern means of communication, much of the research work being done in overcrowded Washington could be done better outside of the administrative sphere of Washington. The Conference of the University Social Science Research Organizations in March 1942 expressed the hope that Government needs might be known in a more centralized manner to facilitate closer liaison with non-Government research units.

The feeling has been expressed frequently during the past years in Congress that research could be more localized because of the sectional or regional nature of many problems, for example, in the business and economic fields, preferably within a national framework to secure some uniformity of approach and technique necessary for synthesis. States might be urged to

develop comparable data. Nor can one say that even during the war such localized research might not be able to meet the needs of large and small businesses in many areas where no research facilities have been developed. Such decentralization could be used to disseminate the research results as well as the research technique, especially in the social sciences. It would encourage State and local pride in scientific investigation.

To what extent has the Federal research program confined itself to matters of regional, national, and international interest, leaving the rest to local or State or private initiative? To what extent should it? There has been some attempt to preserve this fictional differentiation. Problems do not always respect political boundaries, nor do they succumb solely to the attack of local resources. What sub-contracting has been done does concern itself mostly with matters of national interest. Perhaps it might be better to say that the research work, at least in the social field, should be the result of an integrated view of the social sciences at whatever level that ideal can best be achieved.

The Government must give careful attention to the facilities for, and pursuit of, "spot research," but this is not to say that all "spot" work is so "spotty" it must be done in Washington, or that the Government should not make greater efforts to encourage the relevancy of basic research carried on by private agencies. On this point, one can scarcely draw a sharp line between research for war and post-war needs.

There probably still remain many projects of significance in the social sciences that because of their political implications are not the most suitable for Government researchers. What is needed especially from outsiders

is the creative, comprehensive consideration of problems, and the certainty that the results of their creative research are brought to the attention of the Government agencies. A principal problem is integrating the use of the long-range type of private research facilities with governmental needs which must meet a rigid time limit.

It has been said that there are only two situations where sub-contracting is justified: where an informed opinion or analysis is needed and can be procured quickly, orally or in writing, or basic background research. This over-simplifies the situation as we shall point out. Contracting is called for occasionally if only because of the existence of strong or unique collections of material, for example, the Hoover War Library.

The Government in one way or another and with different degrees of cultivation has always drawn upon other research facilities. A brief history of past practices reveals then that this farming out is nothing new; it explains, indeed, many of the prominent features of the history of research in this country, and suggests that such cooperation now has broad and important implications, some of which it will be well to examine.

The Prestige of Research:

The highest policy makers are strengthened on interdepartmental committees and in interdepartmental relationships by being willing, accustomed, and able to tap the results of their efficient research units, at least where knowledge rather than intuition is pertinent. Such factors as the political strength, personality, and prestige of the administrators are of course not to be minimized; but the ability to focus upon a problem an accumulation of facts is probably just as important in the long run. And

there are some signs that this ability is in turn strengthened, and certainly not weakened, by a wise use, through such genuine research units, of cooperative research with non-Federal agencies. It would be enlightening, but possibly very disturbing, to traditional opinions, to attempt a correlation between the ability and inability to utilize research resources and the success of officials and Federal agencies. Upon reflection, a considerable number of examples will be remembered where the correlation is striking.

The administrator is confronted with at least two major problems respecting research: he must be certain he is getting genuine and adequate research results by the best known methods, and he must know whether society or his agency can stand the facts and is prepared to act upon them. In discussions of governmental research, emphasis is put on the latter problem. For convenience, much might be accomplished, especially during the emergency, by a timely emphasis on the first problem. Decisions by the administrator on both matters are equally difficult.

The Broader Aspects of the Problem:

We can rely upon the experience and precedents of the vast amount of agricultural and scientific research sponsored in the past by the Federal Government, and in the emergency by such war agencies as the Office of Scientific Research and Development. Among the compelling reasons for this fuller use of decentralization is the absence of sufficient scientific or industrial laboratories in Washington. For studies in other fields, hardly more urgent, the Government feels that it has in Washington the greatest accumulation of raw material and technical apparatus.

Since 1936, twenty two bills were placed before Congress for developing economic, business, scientific or engineering research. Nearly all of them imitated in essence the Federal support given to agricultural research, and most of them provided for certain procedures of national cooperation with various Federal departments, usually through the State university or the land-grant college, with funds to be administered by the Department of Commerce, the Department of the Interior or a combination of Federal agencies. These long-term subsidies were to establish administrative machinery to supervise approved research plans. Generally, to achieve unification, these bills assumed that there must be a well-thought out Federal interest in the research, a measure of flexible control, and some Federal funds, perhaps on a matching basis. Many research centers are needed, working in different environments. There was agreement in principle but not on procedures. Also the bills were not in accord with the President's program in view of the need for available funds and personnel for national defense. This matter is mentioned here because it has a direct bearing on contracting viewed as a supplementary device, and because the issue will undoubtedly be revived after the war, and in different form, partly because of the war-time experience with farming out.

While many persons, particularly the scholars themselves, may wish to think of research in a vacuum, it is true, and fortunately perhaps, that the cultivation of research activities is determined in part by social and political forces. Researchers in all fields are competitors for portions of the national income no matter where it comes from. There is no reason to suppose that the competition is less keen now, or will become less sharp

after the war. But it is to be hoped that the national viewpoint is broad enough to make it unnecessary to curtail our humanistic studies and to prevent promotional activity from killing scholarship and science.

Granted the circumstances of limited funds and talent and the unlimited bounds of knowledge, and the possibility of a long period of strain, the achievement of essential symmetry in the Government's fundamental and applied research program, as well as the nation's, raises difficult problems of coordination and balance in the solution of which scientists and scholars must share.

Customary administrative procedures of the social mechanism under which research is fostered in the Government, universities, and elsewhere may not be sufficient or the best. Considerable critical attention has been given to the status of the teacher-researcher in colleges, to the merits of the organization of experts according to subject matter or according to problems, to the research functions of professional associations, to the establishment of groups dedicated to coordination, and similar issues. Possibly cooperative programs and more full-dressed contracting will be but one small device to achieve symmetry. But if this is viewed against the background of the totality of research in this country, it is not easy to foresee in detail the use or non-use, and consequent short-term, long-term implications, of farming out.

The Precedent of Agricultural Research:

The Federal-State financing of agricultural research can in a real sense be listed as a precedent for facilitating research by contracting. Within the process, there are numerous clues for other fields of research

in which provisions could be made for comparable studies in each State and region. It also reminds us that the State and local governments, in addition to private research agencies, might be called upon. In essence, it represents a decentralization of research backed by central stimulation and coordination.

In the middle of a war, 1862, the Federal Government established the "land-grant Colleges" in the States to stimulate education and research for developing agriculture and the mechanic arts. Further grants to agricultural experiment stations reflected the nation's interest in agriculture without comparable attention to engineering. The scope of legal Federal supervision and purpose varies under the Hatch (1887), Adams (1906), Purnell (1925) and Bankhead-Jones (1935) acts. Grants for agricultural research followed grants for training; grants for special types of research led to broader needs; grants then followed to bring research results to the people. Through local investigations and years of cooperation with Federal research, experience in the methods of decentralized research has been accumulated. What points of this familiar story are pertinent here?

The first Federal subsidies to research agencies, by the Hatch Act, (1887), went to the States for agencies of a type already in existence by public support, and required legislative acceptance, and the selection or creation of the institutions to expend the grants. Three of the basic acts make equal grants without matching; the Act of 1935 allocates funds according to rural population and requires matching. In effect, the grants helped to create a research center in every State at a time when there were few

active centers. An equitable division of Federal research funds is not made in those States maintaining separate institutions for Negroes. It would take a foundation endowed with \$650,000,000 at 3 percent to match the annual expenditures of the agricultural experiment stations and the cooperative research funds of the Department of Agriculture. The 1943 appropriation granted to the Office of Experiment Stations \$6,926,208 for the States and \$256,497 for administering the research program. The House committee, which restored proposed Budget cuts, viewed with extreme disfavor any suggestion of decreasing substantially the assistance given to the State experiment stations.

The Department of Agriculture contracts with the stations and otherwise assists research. The projects are formulated by scientists both in the Department and outside. The whole process has created a general appreciation of science among the people and the State legislatures which supplement the funds which vitalize research throughout the country. It has brought local problems into a national framework, and has made possible services of training and education at these research points. The Government here puts in money, scientific advice, its own research, and a measure of supervision. The system originated when the Federal Government was not equipped to carry on extensive research. Thus, in agriculture and related subjects, there is a permanent form of cooperation upon which any accelerated program can be based, a permanent form which may not be entirely feasible or desirable in other fields. Indeed, some opposition to contracting originates because there is fear that it will develop into ever-increasing, fixed charges on the national budget.

The formal and very informal relationship with the experiment stations has attempted, among other objectives, to secure the proper recognition for practical field problems and the attainment of broadly useful results at a minimum expenditure of resources. Another important fact is that the Department of Agriculture has constantly attempted to scrutinize its research funds, needs, policies, and procedures by the clarification of interbureau relationships within the Federal-State programs. There has developed an effective link between researchers and policy makers.

There has been an extensive development in the past two decades of cooperative research between the Department and the State experiment stations and land-grant colleges. The basis of agricultural research has been broadened. The Purnell Act of 1925 included sociological and economic investigations for agricultural development and improvement. The Secretary of Agriculture was authorized in 1930 to investigate soil erosion in cooperation with other branches of the Government, State agencies, counties, farm organizations, associations of business men and individuals. The Bankhead-Jones Act of 1935 provided funds "to conduct research into laws and principles underlying basic problems of agriculture in its broadest aspects." Modern developments have turned the emphasis from individualistic field and laboratory work to the regional and ecological basis for research programs.

When the Purnell Act, 1925, enabled the experiment stations to include research in agricultural economics, the Social Science Research Council established a committee to suggest ways to facilitate social and economic research in agriculture and to improve the supply of better-trained

men. New legislation and major changes in Government policy often should suggest to private research agencies the desirability of special research committees, if they have not already anticipated the measures which have not yet reached decisions at the national level. This would indeed supplement the research program of the Government, and is in a definite sense a farming out on the initiative of non-Government agencies. For example, when the Division of Cultural Relations was established, or before, when it became obvious that cultural relations were increasing in importance in international affairs, the scholarly associations should have begun to stimulate studies in this field.

Under the "Plan for Cooperative Rural Research", initiated almost immediately after the organization of the Federal Emergency Relief Administration, the rural research of the FERA was related to the rural sociologists in the state agencies with mutual advantages. In August 1934, twenty states entered into more formal cooperation in research on problems related to rural relief after the informal arrangements had proved very effective. Ultimately forty-one states cooperated in this undertaking. In the early surveys, the States had been selected as sample areas over representative parts of the United States, taking into account the principal type-of-farming areas. The Tennessee Valley Authority and seven State experiment stations have agreed on the coordination of agricultural research in certain fields.

In 1935 when the Chief of the Office of Experiment Stations was designated as Director of Research, renewed emphasis was given to the promotion of cooperation in the planning and coordination of research in order to

achieve a regional approach to major research problems. Thus, various cooperative activities supplement the grants-in-aid to achieve a national or regional outlook. State initiative has frequently laid the basis for cooperative projects among different States; bureau action or Congressional legislation has formed other interstate relationships. The Department has been restrained in its cooperative research undertakings with State departments of agriculture. The Office of Experiment Stations has a staff which devotes part-time to visits with State experiment stations. No periodic progress reports are required; publication of the research result is viewed as a final report. The Experiment Station Record acts as a clearing house for this research work.

The special research fund of the Bankhead-Jones Act provides for cooperative studies through the subject-matter bureaus of the Department. The regional laboratories established by the Act are required by law to work with the agricultural experiment stations of the regions, and this has seemed to work well. The directors and the specialists of the experimental stations have formed regional associations. Occasionally the Office of Experiment Stations is encouraging interstate rather than regional coordination on specific problems which are a segment of the national problem, such as human nutrition; the emphasis is on the objective and superior facilities rather than on the region or other location.

The procedures developed for relating research activities under the instructions of the Bankhead-Jones Act, which established regional laboratories (9 were set up between 1935 and 1939), as well as the program of the four regional laboratories under the AAA Act of 1938, which specifically

provided for cooperation, not only with agricultural experiment stations but also with industries, universities and other agencies, have produced useful devices. It is true that cooperative research between industry and experiment stations has not been easy. The four regional agricultural products laboratories established by the latter Act were located with some regard for equalizing and coordinating the research work among the farm laboratories; specific measures of cooperation have been established with 9 States while others are in progress.

Projects initiated principally from the States are seldom rejected outright, but many are modified in consultation by the review of the Office of Experiment Stations which assigns a referee to cover about a fourth of the country. During 1936, about one-half of the 7,000 projects in all stations were financed in whole or in part by Federal grants, and 10 to 20 percent involved cooperation with bureaus of the Department. During 1941, the Office of Experiment Stations examined, approved, and recorded 1,350 new or revised formal memoranda of understanding covering cooperative research between bureaus of the Department and State stations on well-defined programs for sound agricultural and rural-life planning. Such agreements numbered from 8 to 55 per station, and covered as many main phases of agriculture. During 1941, 20 major cooperative studies were completed.

This type of formal cooperation also encourages informal cooperation with regional and national organizations, and as between the natural and social sciences, on such matters as research in human nutrition, rural housing, farm forestry, agricultural marketing, and home economics. Many

of these cooperative studies, such as that on agricultural adjustment, laid the basis for, and could be dovetailed into, urgent war projects such as the national land-use planning enterprise which is broadly cooperative within and among the States and nearly all agencies of the Department. With the machinery and the habit already well developed, the war has further expedited interstate cooperation in agricultural research.

Legal Provisions for Contracting:

Many other agencies have secured specific but varied legislative provisions permitting contracting and the employment of temporary expert personnel. The Forest Research Act of 1928 authorizes the Secretary of Agriculture to "cooperate with individuals and public and private agencies, organizations, and institutions, and, in connection with the collection, investigation, and tests of foreign woods, he may also cooperate with individuals and public and private agencies, organizations, and institutions in other countries." The National Bituminous Coal Commission is empowered to accept and utilize voluntary and uncompensated services of any person or of any official of a State or political subdivision thereof; it may assist educational, governmental and other research institutions in conducting research in coal.

The Secretary of the Smithsonian Institution is permitted to cooperate with any State, educational institution, or scientific organization in the United States for continuing ethnological researches among the American Indians, and the excavation and preservation of archaeological remains. (20 U.S.C. 1940, 69,70) A sum of \$20,000 is provided for this work to match funds, not to exceed \$2,000, contributed by any State

or scientific organization deemed suitable for cooperative investigation. All such cooperative work and the division of the result thereof are under the direction of the Secretary.

Since March 4, 1941, any non-Federal contributions to the Department of the Interior for investigations or surveys related to the reclamation law can be used as if said sums had been specifically appropriated for such purposes. The Secretary can receive moneys from similar sources, and expend the same in connection with funds appropriated by the United States for any cooperative investigation of the feasibility of reclamation projects. (43 U.S.C. 1940, 396). The cuts proposed by the House were finally eliminated in the 1943 appropriation providing for cooperative stream-gaging work done jointly by the Geological Survey, States, and municipalities.

By an Act of Congress, April 9, 1930 (46 Stat. 50), the Surgeon General was empowered to detail personnel from the Public Health Service to educational and research institutions, and to offer the facilities of the Service to health officials and scientists engaged in research. With the transfer of the Service to the Federal Security Agency, the Federal Security Administrator was authorized (42 U.S.C. 1940, 23b) to accept gifts for study, investigation and research "in the fundamental problems of the diseases of man and matters pertaining thereto." Conditional gifts may be accepted if recommended by the Surgeon General and the National Advisory Health Council. Further, the Surgeon General, with the approval of the Administrator, is permitted to establish and maintain fellowships in the National Institute of Health from funds donated for that purpose.

Divisions in the National Institute could be established as necessary for "the coordination of research by public-health officials and other scientists and for demonstrations of sanitary methods and appliances."

The Federal Security Agency receives the sum of \$200,000 annually for the purpose of making or cooperating in making studies, investigations and reports, largely for the Federal Board for Vocational Education which co-operates with State boards. (20 U.S.C. 1940, 15, 17) For its national defense activities, the Federal Communications Commission's budget for 1943 carried \$50,000 for the temporary employment of persons or organizations, by contract or otherwise, without regard to the Civil Service or Classification Acts.

The Executive Order 8840, July 30, 1941, which established the Office of the Coordinator of Inter-American Affairs specifically authorized the use of private facilities, and provided that the Coordinator "may contract with and transfer funds to existing governmental agencies and institutions and may enter into contracts and agreements with individuals, educational, informational, commercial, scientific, and cultural institutions, associations, agencies, and industrial organizations, firms, and cooperations."

The appropriations for 1942 (Public Law 353) followed this essentially, and enabled the Coordinator to give gratuitous assistance, as he deems advisable, in the fields of the arts and sciences, education and travel, the radio, the press, and the cinema, and to employ in the United States and abroad, experts, special advisors, and other persons, who are not citizens of the United States. These provisions obviously would give added flexibility to the prosecution of research work.

Certain general provisions affecting research may be noted. Any necessary, conceivable commissions, councils, or boards for the prosecution of research cannot be supported by public funds unless authorized by Congress, nor can the Government detail employees to assist in the work of such groups unless authorized. (31 U.S.C. 1940, 673) Sums appropriated can be applied solely to the objects for which they were made, and no appropriations other than those made specifically and solely for printing and binding can be used for such purposes. The restrictions against the advance of public money for services or articles have caused some difficulty in carrying out research projects. (31 U.S.C.A., 529) Considerable use has been made of the ability to hire personal services without advertising. (R.S. 3709)

Contracts:

The provisions of agreements and contracts covering research work, several of which are reproduced in Appendices 1 to 8, will be analyzed as we proceed. The memoranda of understanding developed by the Department of Agriculture in its work with experimental stations are simpler and just as practical as the formal contract which uses more red tape. Such memoranda include the commitments of the various parties, the special reservations of each, the scope and length of the study, and items about funds, personnel, and publication. It is convenient to attach the general plans of the project to the memorandum of agreement.

But farming out can be used in a great number of instances without contracts or the transfer of funds.

THE MOBILIZATION OF SCIENCE

Aeronautical Research:

The Government by necessity intervened in the field of aeronautical research at a very early stage of development of a rapidly expanding industry and when no adequate research facilities were available. Thus, if we may approach this experience by a glance at the National Advisory Committee for Aeronautics, established in 1915, a very interesting story unfolds which may not, however, be easily applied to other fields. The farming out covers industrial laboratories and universities without regard for the latter's land-grant status.

The NACA is composed of 15 members, including two representatives each from the War and Navy Departments. Sub-committees consisting of experts from Government agencies and the industry (in 1941, some 183 persons were serving) initiate and approve research projects which are assigned to laboratories where special facilities or qualified personnel exist. The Government in its laboratories, such as the Langley Memorial Aeronautical Laboratory, carries on fundamental research for the industry; the procurement and regulatory policy of the Government, and the NACA grants to universities mean that applied research in units of the industry and in universities is brought closely to lines desired by the Government.

University research has been secondary but important, and has been used by the industry and the Government for special projects in aerodynamics, radio, structures, lubricants, etc., and for the supply of trained personnel. The research in university laboratories, up to the war, was

not so closely coordinated as in Britain or Germany. The universities' research workers had some difficulty in estimating the relative importance of the problems and in keeping up to date on the status of work elsewhere, some of it highly confidential. Too rigid regimentation might suppress a project completely. "If the coordinating office be prejudiced or lacking in imagination," Dr. J. C. Hunsaker, chairman of the NACA, observes, "progress can be greatly delayed."

A Special Survey Committee on Aeronautical Research Facilities in 1939 recommended that the fullest use and coordination of research facilities at universities and other scientific organizations was an important function of the NACA. The NACA, which immediately organized a survey of such facilities, especially for engine research, had anticipated this recommendation by requesting additional funds from Congress for research in such institutions, thus enlarging the procedure which the NACA had followed from the beginning. As a result of the recommendation of the Federal Aviation Commission, the NACA had made available a special allotment of \$25,000 from each year's funds for research in educational institutions. The Committee also has always had provisions for securing special and temporary services.

During the fiscal year 1939, contracts were made for 12 special investigations and reports at 10 universities and technical schools. In 1940, contracts for research amounted to \$25,000 out of a total appropriation of \$2,020,000; in 1941, \$120,000 out of \$2,775,000. During 1940, suggestions had been solicited from Government agencies and from the industry for research problems suitable for university laboratory allocation.

One of the principal duties of the Coordinator of Research is the maximum use of available research. Under the 1941 funds, some 36 research projects were set up in 18 educational institutions. During the fiscal year 1942, 88 percent of such funds were applied to problems suggested by the industry and the armed forces. The NACA asked for, and secured, funds for 1943 to extend the amounts for contracts from \$300,000 to \$400,000, largely on the ground that such contracting is economical and helps the research output of the NACA's own facilities, and the work of the Army and Navy, without forcing it to multiply its own laboratories. Recently, the Committee has established a section on coordination with headquarters in Washington and offices at Moffett Field, California.

The NACA, by the very nature of the field, had from the start the desire and willingness to do subcontracting, and it is genuinely proud of its well-oiled procedure which has been directed largely by scientists, from the initiating stages of authoritative formulations of the problems to the application of research results. Within this field, comparatively new and well-defined, the working committees are usually able to find the right specialists or agency to do the work, and could build up the contracting procedure from scratch. The individual was not paid until his report was in publishable form. The NACA believes, and has attempted to show Congress, that the farming out is sound and economical. Congress has occasionally balked because any expansion in this direction seemed to be starting in a new form an ever-increasing Federal subsidy to universities. Actually, in many instances, the universities were out of pocket, or university officials would go to foundations to get help, a method which is likely to be less available in the future.

This brief account might here raise an important question. If Federal subsidy for universities and research institutes must come, should it not come by way of contracting for research on a cost-plus a fixed fee basis? Aid could go to universities and laboratories that have demonstrated their competence. This form of subsidy might, however, emphasize certain subjects, and perhaps short-term or spasmodic contributions, inimical to well-rounded planning.

The outside research work sponsored by the Civil Aeronautics Administration began with civilian objects and practical application in mind, and under the administrative mandate to train pilots. In anticipating many of the needs, it proved to be of considerable importance for the armed forces. Here also, contracting was turned to because of the advisability of using existing facilities and for economy. The basic research work of the civilian pilot training program began in 1939 under a flexible, general agreement (modeled to a certain degree on the satisfactory contract developed by the Public Roads Administration) with the National Academy of Sciences and its agency, the National Research Council. (See Appendix, Numbers 2, 3 and 4)

Thus, from the autumn of 1939 to June 30, 1942, the CAA had entered into contracts for psychological research in the selection and training of aircraft pilots to the extent of \$400,000. A committee was appointed in the Council's division of anthropology and psychology to take charge of the matter. During the first year, on a task requiring long and exacting study, 28 collaborators, located at 25 universities, using local facilities and occasionally naval bases, investigated the development of criteria and

standards of competence, the methods of selecting pilots, the analysis of training methods, and the reaction of the student pilot under stress.

The committees offer criticisms, recommendations and research results. The Council is asked to coordinate the activities and the results of tests of the various research agencies. The contract, subject to renewal from year to year, and to cancellation by either party on 30 days' notice in writing, has worked well. The agreement provided for a representative Committee advisory to the Council, composed of Government and non-Government experts, and an Executive subcommittee provided with an adequate staff. Reports are to be rendered on the request of the CAA. The CAA can assist with its own technical representative and with information it may have. The Academy received the funds in twelve monthly payments for actual costs incurred in the performance of its work under the contract, but not for compensation to the Academy.

A more recent enterprise has been covered by agreements between the CAA and several universities for investigations in aviation education. (See Appendix No. 4) This also includes the preparation of text material and recommendations for teaching, as well as broad coverage for other expert consultative advice. Provisions are made for attempting to coordinate the work of the various appropriate research agencies. The contract is not unlike the one with the Academy, but adds, Section 7, "That the University, in carrying out the provisions of this Agreement, shall not discriminate against any worker because of race, creed, color or national origin." The Technical Development Division, using very specific contracts which pay only

on receipt of reports, has also farmed out to universities; it consults with the National Advisory Committee for Aeronautics and the Office of Scientific Research and Development on border-line projects.

The Office of Scientific Research and Development:

A most impressive research development and the most extensive use of contracting with substantial funds, centers about the Office of Scientific Research and Development, within the Office for Emergency Management, to which is attached an Advisory Council, the National Defense Research Committee and the Committee on Medical Research which serve to mobilize the scientific talents of the country on problems relating to the war and the mechanisms and devices of warfare. Broad powers were given for initiating, coordinating, supporting, supplementing, and reviewing scientific research, including cooperative arrangements with foreign countries. To some extent, the National Advisory Committee for Aeronautics was a model for the National Defense Research Committee and the OSRD.

The NDRC, which was created by an Executive Order in June 1940, spent during its first year approximately \$10,000,000 through 270 contracts placed in 47 different universities, technical schools and research laboratories, and 153 contracts placed with 39 industrial firms, all under suitable conditions of secrecy. At the present time, the OSRD has 663 contracts, involving \$22,000,000, in 94 colleges, and 338 such contracts, costing \$12,000,000, with 110 industrial establishments. About \$40,000,000 in all has been spent, including \$735,000 for administration. The Office secured \$73,000,000 to carry this research for the fiscal year 1943, allocating about \$1,900,000 for administration.

The NDRC (composed of eight members: five civilians, the Commissioner of Patents, and two representatives from the Army and Navy) has had the responsibility of assisting the scientific personnel of the armed services, although the Army and Navy frequently contract directly. Thus, an effort was made to distribute the work as far as possible and to draw on all branches of science. The contracts vary from a few thousand dollars to those calling for two to three hundred thousand dollars a month. The NDRC advises the Director of the OSRD which was established in June 1941 with authority to take over the contracting started by the NDRC.

About 2,000 scientists are at work under these contracts. For a well-rounded attack on certain problems, especially in the haste of initiating the work in the summer of 1940, it was necessary to bring scientists to institutions which had contracts. The guiding principle will be to preserve working research teams in situ. The stripping of institutions would have been more serious had not the NDRC come into existence when it did. However, the Director has testified that there has been little pressure from outside institutions to procure contracts.

The intent of the contract is that the contractor shall neither gain nor lose financially, and to cover costs within a top limit. A university is usually allowed an overhead payment amounting to 50 percent of the salaries for the project, and an industrial laboratory, operating on commercial capital and subject to taxation, is allowed an overhead of 100 percent of the salary item. Contracts are initiated and supervised by about 60 sections in four major divisions (Chemistry, e.g. has 30 sections), suggestions having come from the armed forces, from the sections, and from the overall Committee. The sections locate the proper research group and

recommend a contract to the head of the division and the NDRC. The Army and Navy members check to see how the proposal fits into their programs.

About 737 persons serve in the NDRC organization, as members of sections, consultants, etc.; a thousand will be serving in 1943. The Government thus gets much valuable assistance free of charge. The section members meet as frequently as necessary and are reimbursed only for travel expenses. The specialists are usually well-known to each other. The chairman of the NDRC appoints the members of the sections and consultants only after official clearance by Army and Navy Intelligence and the FBI.

The coordinating machinery is highly perfected. The relationship with the War and Navy Departments is close. Results come back both through the sections, on which there are representatives from the armed services, and through the central NDRC and OSRD to which are attached high-ranking military officials. The gap between the laboratory research results and mass production is being shortened. The War Department has placed orders amounting to approximately \$560,000,000 for items developed by one section of the OSRD. A new process developed for explosives by another section resulted in an initial saving of \$100,000,000 in plant construction costs. The limiting factors on this research program will be a personnel shortage rather than inadequate financial aid.

The OSRD in 1942 also got permission to make payments in advance of the rendering of the service or the delivery of the article contracted for, in spite of section 3648 of the Revised Statutes (31 U.S.C. 529). This limitation, also overcome recently by the Coordinator of Inter-American

Affairs, frequently worked hardships on private agencies otherwise equipped to carry out a contract. The following terms laid a broad basis for action: "Where any Federal agency now or hereafter has funds available for scientific or technical research, development, testing, construction of test models, experimental production, or the provision of facilities therefor, it may, in its discretion, make transfers of those funds, in whole or in part, to the Office for Emergency Management for allocation to the OSRD, and the funds so transferred may be expended for all the objects and by all the methods authorized."

Scientific Councils:

Science had been mobilized before, but two of our existing civilian organizations, the National Academy of Science and the National Research Council, had little free money, few research facilities of their own, and no extensive machinery for getting the Government to use the permanent channel of communication which had been established. The National Research Council had to wait to be called upon, it could not initiate attacks on important problems. The post-1918 period was one of laissez-faire in military affairs; the armed forces had little to spend on development or on research to produce new instruments of war; civilian fundamental and applied science operated in a slow-moving peace economy.

Yet the order setting up the NDRC did not include the field of the NACA nor the advisory work of the Academy and the National Research Council. The advisory and technical work done by the Council for the Government represents an out-of-pocket sum of \$1,000,000 a year. Authority was given to the OSRD to pay the National Academy of Science a sum not exceeding \$81,000, in addition to any reimbursements otherwise provided for, for

the administrative and overhead expenses incurred during 1942 in carrying out research projects for Federal agencies.

Medical Research:

The Medical Division of the National Research Council provided the nucleus for the Medical Research Committee in the OSRD. In active development, the Medical Research Committee was about a year behind the NDRC. Since the work of the Committee of the OSRD is hardly confidential, suggestions for projects often come from hospitals or universities. There are 169 medical contracts out of a total of 1,001 (June 1, 1942), placed in 60 institutions, the largest number being in the East, 30 percent in the Middle West, and 25 percent in the South and Far West. There are now 250 members of 43 committees and subcommittees, set up within the National Research Council. In the summer of 1941, the Committee was made a definite arm of the Government.

Through the National Cancer Institute, and the National Cancer Advisory Council a uniform and coordinated program of research has been undertaken, supported in part by relatively small grants from the Institute. Through the grants (\$130,000 in 1943) for the training of personnel, and in working with the American College of Surgeons, interest in cancer study has been stimulated. The personnel are appointed, under the provision of Section 5 of the National Cancer Institute Act, to work on projects. A university may ask the Institute for aid, either a cash grant to pay research workers and to buy equipment, or the Institute may put a research fellow on its own pay roll to work in some institution or at the Institute. This device enables the Institute to judge whether the younger

scientists should be offered a permanent position at the Institute when vacancies occur.

A sum of \$91,000 in the 1943 budget of the Public Health Service is marked for grants-in-aid of research projects, all of which are reviewed by the National Cancer Advisory Council before they are recommended, in outside research institutions. One of these grants goes to the National Research Council to assist in the maintenance and progress of the American Registry of Pathology. The Public Health Service has been able to retain a clear distinction between its action program and its research program in the procedures of interchanging with non-Federal agencies the facilities and the results in medical research.

The Federal Trade Commission obtains, when necessary, medical and other scientific and expert opinions from non-Government hospitals, clinics and laboratories.

The fact that the opportunities for studies on the health and welfare of children exceed the resources of the Children's Bureau has led the Division of Research in Child Development to work closely with research agencies. Since 1938 numerous studies on prematurity were made in cooperation with the New York Hospital and the Department of Pediatrics at Cornell University Medical School, and other hospitals. The Division has some supervision in this project and supports it by assigning employees who are placed on the pay roll of the Bureau. The Division has no power to contract or to make lump grants. The Division of Statistical Research worked with the Division of Public Health Methods of the National Institute of Health and the Maryland State and Baltimore City departments of health in a study of childhood mortality.

The Implications of the Procedure in Science:

Physical and natural scientists have remarked that the problems before the social scientists are not important enough or sufficiently suitable to warrant a similar procedure. They have also remarked that in science there are recognizable units of workers capable of giving a well-rounded treatment to a problem which makes the selection of contractor much easier. In the social sciences and the humanities, the skills are fragmentized or compartmentalized to such an extent that it would be unwise to farm out a project which could not be worked on by a team of diverse talents without causing an undesirable specialization in the research agencies, particularly the universities.

But it is obvious that even in the scientific program, certain concentration has taken place to build up a suitable research team. The University of Chicago, for example, has accepted Government-sponsored war research contracts, the direct cost of which is above \$600,000; in the natural sciences 50 percent of all the University's research (up to 80 percent in some fields) is "war research." Science, too, is compartmentalized, and there has been no indication, at least within universities, that the specialists in science have fraternized, cutting across departmental lines, any more than have the faculties in the humanistic and social sciences.

Such observations reflect rather more fundamentally the beliefs that the problems capable of attack by social scientists are not so important as to merit or need comparable expenditures of Federal funds, that the projects cannot be formulated concretely and precisely, and that the standards of judgments respecting expertness are more precise in the natural and

physical sciences. Although there is an element of truth in these points, perhaps the only pertinent question here is whether our social machinery, to keep functioning effectively, and to keep up with the new pace of science, must have now an energized research program among the social sciences.

Industrial and Technical Research:

The war strength of our Nation owes much to the most extensive and continuous research in the world carried on by American industrial and business firms, in the past and now. The scope and ramifications of this technological strength are so vast, and so much an intimate part of the war mobilization, that it is misleading to cite a few instances where formal research agreements have been made between Federal agencies and private facilities.

Almost without exception, industrial and commercial laboratories, technical associations, and experts sustained by privately supported research have made contributions on their own, freely and rapidly. The OSRD has found the industrial laboratories very cooperative, and such laboratories have frequently pooled their knowledge, as in the important field of detection devices. The centering of research on the instrumentalities of war through the emergency organizations of the OSRD still left a broad area of technological research to find its governmental focus in rapidly changing war agencies. Any desire to coordinate, to push forward even faster, and controversies, like the perennial one over patents, should not obscure the achievements or the nature of the research mechanism.

Two years ago, in carrying out responsibilities now centered in the War Production Board, the National Defense Commission and the OPM entered into contracts with the National Academy for over 140 reports embodying the most expert scientific information available quickly and without laboratory work. The Government met the expenses (about \$30,000) of these technological committees, which also outlined future needs for laboratory and pilot plant projects on production, processing, conservation, and substitution. Meanwhile, some provisions for laboratory work had been made with private firms.

For the 1943 appropriations of its Materials Division, the WPB had requested \$5,000,000 to be used through various public and private laboratories and firms for experimental work. This was trimmed by the Budget Bureau to \$500,000, plus \$30,000 requested and approved for technological investigations through the National Academy of Sciences. "We will find some way to get this experimental work done through some other agency, or through the use of some other funds," Mr. Nelson remarked.

Shortly before the sum of \$500,000 was to become available for the fiscal year 1943, the War Production Board, in an effort to meet certain urgencies, drew up a letter of intent to enter into research contracts with the Academy on a cost basis. One of these projects, on tailings from copper operations as a source of aluminum, was transferred at the request of WPB to the budget of the Defense Supplies Corporation (RFC). If necessary, advanced payments can be made from the 1943 research fund; such a provision the WPB was eager to secure. Research needs are suggested in the divisions of the WPB and in outside technical committees; the results come

back to the Board and are distributed to the officials most concerned. The mechanism has been modest and flexible, and at times, slow. A central staff was planned within the Materials Division to review all proposals. The WPB has in its new manufacturing plants facilities for technical experimentation. Informal consultation with the OSRD prevents duplication in border-line projects. Any more intensive development of technological research in this war will no doubt make extensive use of contracting. It has been said that the findings of laboratory work are ahead of the application in war industries which must produce immediately.

The branches of WPB have instigated and used investigations in many industrial laboratories. For example, the Bureau of Industrial Conservation has used the American Bell Telephone, General Motors, the Battelle and Mellon Institutes, and others. The Board has requested the National Research Council to appoint a committee to make recommendations to WPB as to the most effective grouping of research facilities, not now engaged in war research, by regions or by adaptation to classes of projects; as to the organization of these groups, and the best procedures for establishing a two-way flow of ideas.

Suggestions also come from the National Inventors Council, created by the Secretary of Commerce, with the concurrence of the President, in August 1940, to maintain a central clearing house for inventions to which ideas may be submitted pertinent to the defense program. Existing Army regulations require that all inventions submitted by the general public through the War Department should be referred first to the Council which

evaluates and transmits such ideas to the appropriate agencies. It does not administer funds for compensation which is arranged for by other agencies, if warranted.

The research program sponsored by the Navy is very broad in character; problems have been placed at private research organizations as well as navy yards and laboratories. The report of the Secretary of the Navy, 1941, declares: "Cooperative research has continued to be a most active basic principle. Manufacturers, universities, and associations furthering technical research have all cooperated most enthusiastically and efficiently in advancing the various research programs."

The Rural Electrification Administration and various State universities and land-grant colleges have recently attempted to stimulate an interchange of findings in the use of electricity as an aid to farming. The Corn Industries Research Foundation, comprising eleven companies of the wet and starch-milling industry, is studying jointly with the Bureau of Home Economics the use of corn syrup and dextrose in food products. To carry out the recent mandate to label wool products, the Bureau, under the joint auspices of the American Society for Testing Materials and the American Association of Textile Chemists and Colorists, participated in a second cooperative study to compare the aluminum chloride and sulfuric acid methods. Further interest in developing national standards led the Bureau to cooperate with the National Household Equipment Research Committee.

One of the most successful contracts exists between the Public Roads Administration and the National Research Council for the Highway Research

Board by which the Council has received annual grants of \$20,000 since 1922 for encouragement and coordination of a national program of research on the construction and maintenance of public highways. (See Appendix 2) The Board is a national clearing house and as part of its information service maintains revised censuses of research projects. Industrial concerns and other sources help to supplement this fund. The Council thus brings to a focus the various agencies of the country to attack this national problem. The Public Roads Administration has authority to conduct research on all aspects of public highways, independently or in cooperation with State highway departments or other agencies. For example, it has joined with several State highway departments and the cement industry to build experimental roads.

For a long time the Federal-supported investigations dealt with research on materials. The increasing amount of research since 1934 in the field of highway planning and economics is in part the direct result of the Hayden-Cartwright Act of June 18, 1934 (48 Stat. 995, Sect. 11) which directed that $1\frac{1}{2}$ percent of the Federal aid allotments to any State must be spent on surveys, plans and engineering investigations of projects for future construction, either on the Federal-aid highway system or on secondary or feeder roads. "Economic" investigation was added in 1936 (Public Law, No. 686, June 16, 1936). This encouraged the States one by one to modify the emphasis of the research program.

Partly because of the lag in soil sciences, the Soil Conservation Service has been eager to further research at all levels, with State and city departments, under cooperative agreements or memoranda of understanding, supplemented by revised procedures worked out in collaboration which

have decreased supplemental agreements, paper work, and reporting. The Bureau of Mines has participated in cooperative investigations with an association of an industry, a technical society representing an industry, or a combination of manufactures. The fourteen regional experiment stations of the Bureau are operated in cooperation with State schools; the Geological Survey's stations also have authority to collaborate.

Patents:

Possibilities of conflicts over authors' rights in social science research hardly exceed those over patents in the scientific and technical fields. There has been enough experience in connection with industrial research to prove that such cooperative research can be made without accusations of excess private profit, and that patent difficulties need not stand in the way of such research carried on for the general benefit of an industry or the Nation. The reader should turn to Appendix No. 1 to note the provisions concerning licenses, patents and royalties carried in most of the OSRD contracts. If any invention is made in the course of the contract, the Government will be given a free license. If there is a patent structure, necessary for the production of the new invention, the Government will have an option to acquire licenses on a basis to be determined by negotiation.

THE SOCIAL SCIENCES AND THE HUMANITIES

Collecting Research Material:

This country has a complex statistical organization which by law and persuasion accumulates a tremendous variety and volume of statistics and other data, a large part of which has been of great significance in the war mobilization. These statistical agencies are now more vast and sharpened than in World War I. The Government has not hesitated to collect reservoirs of data by using non-Federal agencies. The clear-cut purposes of such collection would seem to warrant more extensive cooperative arrangements.

The Bureau of Labor Statistics, to prevent annoyance, duplication, and waste, has agreements or contracts with agencies in about a score of States to collect, tabulate and transmit statistical data on employment, pay rolls and hours of work to the Bureau. The Bureau in these instances offers to transfer one of its employees to assist with the work. This arrangement expedites the monthly reports of the Bureau and insures comparable statistics. Some States also join in collecting data on labor turnover and union wages. Tabulation procedures have been simplified. Members of the Women's Bureau staff served as consultants to State minimum-wage divisions on the planning of industry studies, and on methods of tabulating and interpreting statistical data for wage-board use.

Forty five urban areas now participate in the project of the Division of Statistical Research of the Children's Bureau which produces data for the only general over-all picture of expenditures and services for health and welfare activities. The preparation of good record forms, as for

example those developed in the Children's Bureau, assist materially State and local agencies in compiling usable research data. Both the Bureau and the Public Health Service participated in joint field studies of records and reports undertaken by the Records Committee of the State and Provincial Health Authorities of North America and the Commonwealth Fund. In certain States, some of the matching money of the Social Security Act may be used for collecting necessary statistics.

The U. S. Office of Education has had a cooperating committee of representatives from the States to develop uniform records and reports, but a full, satisfactory reporting system has not yet been achieved. Many of the State departments of education have inadequate statistical services, and the Office has no authority to demand reports from the States or from the local school districts, many of which do not have to report to the State. When a Congressional appropriation committee early in 1942 suggested a study of the impending impairment of public education because of the war effort, the Office, in its plan of operation, proposed to place experienced people in the field of public school finance in the various States to gather the raw data which would be interpreted in Washington.

A humble but seemingly effective example is covered by the \$1,000 earmarked by the Public Health Service as "Nominal compensation of collaborating epidemiologists" to pay 6,000 dollar-a-year doctors in the States (only 1,000 ever send in a claim) to make reports each week on the incidence of diseases, using franked envelopes supplied by the Surgeon General. Data on the population of mental and penal institutions is submitted on a voluntary basis to the Bureau of the Census by State agencies and institutions.

The Office of Petroleum Coordinator has broad authority to ask industry committees, supported by the petroleum industry, to collect and analyze data. "A careful survey of each problem and the facts bearing on such problem shall be made by the appropriate industry committee or subcommittees as may be designated, and consultation shall be had with the appropriate governmental representative of the Coordinator." The committees may direct inquiries and questionnaires to such companies or persons as may be necessary, and may ask and receive expert assistance from any company or person, and may hold hearings and compile and analyze facts, figures or other data. Special procedures are suggested where the collection and analysis of data involves more than one geographic area or functional division of the industry. Although not specifically required, some report forms used by the committees have been cleared in advance with the OPC. Also, the Secretary of the Interior, as Solid Fuels Coordinator, may secure necessary data in a similar fashion.

One should also cite the temporary organizing committee of the Inter-American Statistical Institute which spent \$20,000 of privately raised funds to forward the organization for the development and the promotion of uniformity of statistics in this hemisphere; Congress authorized an appropriation in January 1942 to enable the United States to become an adhering member.

The Research Basis of Planning:

Cooperative research has been decided upon in some instances as one practicable way of attempting a fruitful synthesis of the conclusions of research men, administrators, and laymen throughout the country. This

valuable educational and planning by-product is hard to measure, but should be credited along with the concrete research results. The process keeps before the expert the consumers of research and their problems. This has often led to joint planning of new research programs.

For the past three years, the Bureau of Agricultural Economics, in its part of agricultural and land-use planning, has developed more extensively reservoirs of research data through land-grant colleges and experiment stations, State, county, and community committees of farmers, administrators and technicians. This was of marked assistance in meeting war demands. Thus, nearly 1,900 county committees and 10,000 community committees were brought closer to the research which must underlie planning activities. To some extent, the technical assistance offered by colleges and the Department of Agriculture has helped to produce lay researchers. The Bureau has made a definite effort to blend research (and planning) into action programs. An interbureau committee on the Columbia Basin Irrigation Project facilitates cooperation with State, regional, and local agencies as well as with Federal agencies, with the needed studies ranging from soil management to sociological problems of community settlement. The lack of basic information in the acute problems of distribution, marketing, and transportation, points to an integrated national research program carried through at all levels.

But it must be pointed out that this cooperative work has been the target for sharp attacks on the Bureau which has resulted in decreased appropriations and with the limitation in 1943 funds that no money can be used for State and county land-use planning.

Considerable Federal assistance is available for State and local planning purposes, and in many instances, much of this can properly be looked upon as involving cooperative research mutually advantageous. Many agencies, including the National Resources Planning Board, have stimulated State planning activity by allocating technical services to State planning boards, usually on matters of State-wide or interstate significance. Many of these undertakings, often a form of bargaining with the State, are covered by contracts stating the purpose, methods, and share of costs of the project. A significant, if not one of the earliest, instance of a Government agency matching the funds of a university social science research organization occurred in the cooperative urbanism studies sponsored between 1935 and 1938 by the National Resources Committee and the University of Chicago. The State agencies, likewise, usually would do well to investigate the possibilities of enlisting the services of suitable research agencies wherever they exist in the States rather than to expand their own research staffs.

The Farm Credit Administration occasionally lends expert personnel for use in preparing sample studies. The Coast and Geodetic Survey does cooperate with various organizations whose interests are purely local, but such work is usually limited to a review of proposed projects. The Bureau of Biological Survey of the Department of the Interior is limited to a few joint research-educational projects in wildlife conservation, using Federal-local funds; but it can assist more widely with technical advice. The relation of the Bureau of Fisheries is mostly with State Fish and Game Departments, and not with local governmental units. Recently, however, a

precedent was created when a county contributed funds and conducted a study of marine fisheries jointly with the Bureau.

Educational Research:

Besides helping the States to perfect their reporting systems, the U. S. Office of Education has stimulated and participated in numerous cooperative research projects with State and private agencies. The Office has made use of special collaborators, sometimes paid a flat fee, but usually nothing or a dollar a year. Occasionally, the Office publishes private manuscripts, especially if the studies were planned to meet specified needs of the Office. Much of the relationship has been personal, rather informal, and through professional, national or regional committees, particularly for the collection of survey data.

The Office drew on the assistance of the national Committee on Advanced Courses in Vocational Education which issued its reports as bulletins of the Federal Board for Vocational Education. Regional committees studied the programs needed for Diesel engine and air-conditioning courses. Cooperating with the National Committee on Standards for Vocational Education in Agriculture of the American Vocational Association, and with various States, the Office continued its national evaluation of vocational education begun in 1939; this also involved some training of State evaluation committees. States in the North Atlantic region, assisted by a representative of the Office, have for several years past been conducting a study of the placement of the Trade School graduate. The State Boards of Vocational Education, authorized under the George-Deen Act to undertake or

finance research in certain fields of industry, agriculture, and home economics, can farm out work to the experiment stations.

National surveys, as for example on the higher education of Negroes, have been conducted with funds from interested groups and foundations and the regular resources of the Office. Subsequently, four national surveys, participated in by specialists outside the Office, were financed by a special Congressional appropriation.

A study has been completed jointly with the American Association on Mental Deficiency, and the Office is drawing upon educators throughout the country to complete a report on the education of gifted children. Staff members working with State staffs have reviewed the program of homemaking education in more than half of the States. The Business Education Service assisted the State supervisors of distributive education in a study of the replacement training problems for retail stores, and has encouraged the States to employ competent personnel to carry on studies and investigations in the field of distributive education. Steps have been taken to organize a national research committee to work with the Service in correlating research projects to prevent duplication.

The Occupational Information and Guidance Service worked with representatives of sixteen teacher-training institutions in North Carolina in a two year study to determine the extent to which guidance work should be required of prospective teachers. The Office has worked with a committee of the National Education Association and the Society for Curriculum Study to publish a study on family living, and has worked especially with teacher-training institutions on curriculum revision studies. The Division of

Higher Education has continued its interest in the analysis undertaken by the Association of American Universities of requirements for entrance to graduate schools, and plans were under way to obtain the participation of the Graduate Section of the Association of Land-Grant Colleges for a similar study of schools within that organization. Other Federal agencies have turned to outsiders for assistance. For example, the War Department contributed \$15,000 to the work of the Cooperative Test Service of the American Council on Education for the construction of tests to assist in the education of warrant officers.

Many well-known deficiencies operate in the field of educational research. But the existence of State prerogatives and strong national educational organizations make any use of contracting an interesting procedure.

Research on Relief Funds:

Although it would be helpful to have a frank appraisal of the cooperation in research under the Work Projects Administration, the very fact that much of its research program was of the work-relief type would make it inapplicable. However, there was here a wide use of farming out, including research supervision and advice in a great variety of ways and with many types of agencies. For example, the Industrial Research Department of the University of Pennsylvania, the Employment Statilization Research Institute of the University of Michigan, and the National Bureau of Economic Research cooperated with the WPA National Research Project on Reemployment Opportunities.

By using emergency relief funds in 1936 and 1937, the Office of Education demonstrated the workings of cooperative research between the

Office and universities, State departments of education, and local school systems. About \$411,000 was allotted for cooperative research in universities. This was prompted by the financial needs of unemployed researchers and of universities whose research programs had been curtailed. Sixty universities participated. Nineteen regular staff members of the Office assisted in planning and coordinating project studies; about 70 university staff members served as local project administrators; more than 600 college graduates worked on the project staffs of the institutions. Both the Office and the institutions formulated plans, and worked so that the findings would be comparable. This project indicated a national demand for coordinated research work among the universities and its practicability, in spite of all the difficulties of administering relief funds and the temporary nature of the project.

Economic and Business Research:

The Bureau of Foreign and Domestic Commerce has been extending its cooperation with university schools of business and departments of economics, and acts as a clearing house for business and economic research of interest to business, the universities and the Government. Since 1936 there has been a committee of the Conference of State University Schools of Business which has worked on integrating several research projects with the Bureau. This has been done on an informal basis. The Bureau has endeavored to focus attention on acute national problems, but recognizes, especially through the agency of its field services, that university research staffs are often well placed to conduct research into local problems which may have national meaning. The Bureau has formulated recommended

research projects and has attempted to keep on file in its offices the results of completed research projects. Arrangements with a few of the university bureaus of business research assisted the collection and dissemination of sales data.

The Bureau established jointly with the University of Minnesota in December 1940 a cooperative business research station close to the Regional Office of the U. S. Department of Commerce in Minneapolis. This station, an experiment which has not yet been extended, is to determine the advantages of decentralization of research on problems of national significance, as well as those of a more regional and local character, and to examine some of the problems of small business and the opportunities for active cooperation in practical research for business. The twelve regional business consultants appointed in 1941 also work with the business and economic research personnel to encourage work to fill important gaps in data and studies. In several important fields of study, the Regional Research Unit of the Bureau has the experience and mechanism for tapping outside research facilities. Several studies, for example one on state trade barriers, suggested by the Unit have been worked on immediately by university economists.

Both these procedures form a basis for future development. The station idea, of course, resembles the agricultural experiment station, and in expansion, would probably call for annual charges on the national budget. How much greater use can be made of the regional consultants remains to be seen. The war has dislocated severely existing economic research facilities. The regional consultants would have to be assured of authoritative formulations of the problems in this vast field from Washington, and given some reason to expect that such formulations represented

the studied view of the Department of Commerce and other interested departments of the Government.

In order to forestall the complete abandonment of, and for the final stages of editing certain of the Treasury's important studies of Federal, State, and local fiscal relations, carried by \$48,000 of Federal funds up to April 30, 1942, the Institute of Public Administration supplied funds for May and June. The original sum approved by the Bureau of the Budget was \$80,600. The Treasury again appealed to the House Subcommittee on Deficiencies for \$6,400 for completing many studies which would otherwise be terminated prematurely. Curiously enough, a Congressional appropriation committee early in 1942 suggested that the Office of Education draw up a very similar project to study the fiscal difficulties affecting education because of the war; the project brought in called for \$88,470.

Labor Research:

Cooperative procedures at certain stages of the research process often have useful administrative values. For example, recent legislation makes it necessary to collect and appraise the wage facts of American industry. The Research Section of the Department of Labor, in carrying out basic studies necessary for committees or public hearings, often touches upon research problems in an increasing number of conferences with management and labor officials. The so-called "panels", which have been given enthusiastic support, are selected by the Research Section with representation of the industry. Sometimes the wage data are voluntarily collected by management or labor, or jointly by both, and then collated by the Research Section prior to a public hearing. Up to June 30, 1941, 83 panels, representing 68 industries, had functioned.

The Bureau of Labor Statistics called a conference in Washington, June 1940, with research directors of national and international trade unions which was successful enough to warrant plans for annual meetings thereafter. In addition, the Bureau has continued to expand its relationship with research departments of labor organizations. The conference resulted in a standing committee consisting of nine research directors (four from the American Federation of Labor, four from the CIO, and one representing the independent railroad brotherhoods), to advise with the Bureau on the type of research materials which would prove most helpful to labor groups. Many of the suggestions made at the conference, and by the standing committee, anticipated research demands brought on by the war.

An interdepartmental committee, and a committee of the Price Conference of the National Bureau of Economic Research furnished expert advice to the BLS for the general revision of price indices. Estimating techniques for building construction were developed in collaboration with the National Bureau of Economic Research. In one State, the Women's Bureau joined in a survey of the cost of living of employed women to be used as a basis for revising existing State wage orders.

Press Analyses:

Although the Special War Policies Unit of the Department of Justice contemplated farming out in 1941, especially for analyses of the foreign language press in the United States, the Unit decided against it because

the problems and material were too closely interwoven with other confidential material which sometimes called for prosecutions, the work demanded immediate attention in the Office, and the appropriations did not permit the Unit to make contracts with non-governmental agencies which in this instance, it is said, would have proved more expensive. Since then, the Organization and Propaganda Analysis Section of the Unit services about 7 other Government agencies in the reading and analysis of our foreign language press. The arrangement between the Division of Alien Registration and a private Translation Service has worked satisfactorily on a contract basis. It will be recalled that many voices have urged that the Government establish a central translating bureau as an economy measure.

The Justice Department has also taken an active interest in university research projects in adult education which contemplate the preparation of materials and the training of teachers for the education of our foreign-born.

Emergency Government Agencies:

During the gestation period of what came to be the Office of the Coordinator of Information and its Division of Special Information, supported in the first year by \$1,125,000 from the President's funds, there were proposals which suggested that the declared needs could be met almost entirely by a decentralized mechanism with a very small Washington staff, and by contracting. But various forces, including a vaguely formed conception of a civilian-scholar general staff, and an understandable desire on the part of research experts to be in a well-marked war effort, made for centralization in Washington where the needs and much, but by no means all, necessary

research data had accumulated. A sociological study of the resulting organization and achievements, and the great urge to forsake university moorings, would be a valuable commentary on American scholarship.

At the outset, the funds available anticipated a greater use than has been made of sub-contracting. Specialists have been used for several days at a time on specific questions, primarily respecting foreign regions, and some consideration has been given to four or five minor projects based on facilities and personnel in colleges. The reason for the reluctance to proceed much further in this direction is that the armed services have called upon the COI which felt it should not in turn pass the work, much of it topical research, on to someone else. The Office has, however, toyed with the idea that expert volunteers, often located near strong library resources, could help to build up a morgue or reservoir of semi-finished foreign topical and biographical information. The Office would provide a small sum for traveling and clerical assistance for the regional centers, and the material could be fed into Washington.

The COI, or the groups of it reorganized late in June, now has considerable experience with research work of a sort in Washington, and the machinery for ascertaining and anticipating needed research; its expert and highly-paid staff, usually thoroughly familiar with university and professional matters, might conceivably in the future go further as an articulating agency for exploiting and stimulating research elsewhere.

The Office of Facts and Figures has asked for budgetary language to cover funds for employing temporary personnel on a per diem basis and

contracting. The intention has been to increase contracting for writing done by outsiders, sometimes in collaboration with staff members. The Writers' War Committee agreed to send out to its 2,000 members throughout the country suggestions for interesting articles on the war effort. The Office is in a position to offer some help in getting the necessary data for adequate presentation. Rather than embark upon extensive field work, OFF has contracted, on a cost basis, with the University of Denver and American Social Surveys Inc. at Princeton for reports based on public opinion polling technique. The latter non-profit organization has the right to sub-contract. At one time OFF seriously considered establishing opinion study centers in collegiate campuses.

Although the Board of Economic Warfare has used outside experts on a per diem or voluntary basis, it has given little thought as yet to cooperative research except within the Government framework. It has planned to establish a basic file of information on the thousands of persons throughout the United States who have a specialized knowledge of foreign countries. This would be a useful tool to implement farming out.

Research on Foreign Regions and International Affairs:

For one reason or another during the emergency period, an increasingly large bulk of Federal research on foreign regions and international affairs has not been under the supervision of the Department of State. This is perhaps an additional reason why the Department has not looked with great favor on farming out. It has a considerable amount of material to digest in its own divisions whose work is usually topical in nature; it has, of course, access to specialists in other agencies. Most of the Division budgets have no funds for using outside talent or projects. At the moment,

the Department has interests in two outside projects, one covered by a contract, another by a loose, general agreement; certain assistance on overflow work or basic research is thus available. Frequently, scholars write in with proposals and the Department expresses an interest, but does not officially go much further.

It will be recalled that the Division of International Law of the Carnegie Endowment for International Peace between 1918 and 1922 spent over \$61,000 on important work for the Government for preparatory studies relating to the Peace Conference.

The close cooperation of the Division of Cultural Relations with educational institutions, institutes, vacation schools, and scholarships and fellowships, has indirectly, if not directly, developed an interest in phases of research which will prove more and more significant and relevant for the long-term program of the Division.

The Inter-American Field:

The emergency Office of the Coordinator of Inter-American Affairs functions almost entirely by methods of the project and contract on a cost or a cost-plus-a-fixed-fee basis with a great variety of organizations in this country and abroad. (See Appendix 5 and 6) During the fiscal years 1941 and 1942, nearly 500 projects were under way, a small portion of which is of a research character. These methods have enabled the Office to get rapid results and to use personnel not otherwise available. Various advisory committees, with non-Government representation, are in a position to formulate suggestions for research needs. Projects go before a policy section, and if approved, through the law sections of the Office, and, until recently,

the Office for Emergency Management. A division of the Office policies the performance of these contracts, which cover work on music, publishing, film scoring, bibliographical tools, etc. The 1943 budget request of nearly \$29,000,000 included \$3,000,000 to carry the contracts. During 1942, the projects most pertinent here are those sponsored by the Science and Education Division (\$1,641,418), the Basic Economy Department for professional, technical, and consulting interchanges (\$463,000), and the Commercial and Financial Department for highway and railway surveys (\$40,000). Several special projects asked for in 1943, to the extent of \$75,000, contemplated specialized research and reference work by private organizations. Occasionally, the restrictions of the General Accounting Office have delayed putting money to work on contracts.

The American Council of Learned Societies, under agreements with the Office, is serving as fiscal agent for the expenditure of substantial sums for various inter-American activities, including intensive training centers for workers in this field. Some of these represent allotments and outright grants-in-aid. The American Council on Education has begun for the Coordinator an analysis of American textbooks to ascertain how they describe Latin America.

Possibly in retrospect, the field of Latin American studies, hitherto relatively undeveloped and under-staffed with experts, will demonstrate what happens when research funds are suddenly increased.

A Federal Regional Agency Invests in Cooperative Research:

To promote the development of the Tennessee Valley region, the Tennessee Valley Authority, with greater latitude than the research bureaus in

Washington, does research in many fields, frequently in cooperation with established agencies and educational institutions.

Cooperative research has developed under specific authorization in Section 22 of the Act creating the TVA and through numerous phases of the regional program to the advantage of TVA and the participating institutions. It has avoided the duplication of facilities and activities, and has promoted valuable professional contacts and the wider interchange and use of the results of research, essentially of value to the democratic process. Many research projects set up on a temporary basis have been continued by the local agency after TVA assistance has been withdrawn. The TVA, by its location and work, is in a position to know a great deal about the neighboring research facilities. The Initiative for research may come from outside or from TVA. The relationships range from very informal agreements to contracts, with or without the exchange of funds.

The amount of direction or control exercised by TVA varies greatly. Most activities call for a mutually acceptable project outline, agreement on procedures, periodic progress reviews, and a final report of findings, sometimes with a staff member of TVA as consultant. The terms and conditions of the cooperation are worked out with the institution by the interested department of TVA, and then are reviewed by the General Manager's Office with specialized consideration by budget, legal, and personnel officials.

A partial listing of TVA cooperative research projects includes: investigations of phosphate fertilizers and agricultural practices (with State experiment stations); marketing research and surveys of farmers' cooperatives; studies of municipal government in four States of the Valley

with three State universities and one State planning commission with reports printed and distributed cooperatively; archaeological research; research and manuals on local assessment practices; studies on the potential uses of the Tennessee River for navigation jointly with barge lines and business men; interterritorial freight rates; engineering research, often jointly with manufacturers and experiment stations, and negotiations to get completed equipment and processes in use by TVA or by patent administration agencies such as the University of Tennessee Research Corporation and the Industrial Development Council of Georgia; research on tuberculosis mortality and investigation of malaria therapeutic agents; and regional studies, in part with the Southern Regional Committee of the Social Science Research Council.

Other Examples of Farming Out:

The National Resources Planning Board has arranged with private agencies to do analyses of research in industry (the National Research Council) and in business (the Social Science Research Council), and to make estimates of our future population (the Scripps Foundation). The University of Denver, for example, has a working agreement with a regional office of the NRPB to assist in the study of Rocky Mountain problems.

Although the Civil Service Commission has had little occasion to go beyond its own investigations, it has worked cooperatively, with no exchange of funds, with such organizations as the American Management Association and the Engineering Foundation, to further research in problems of personnel selection, placement, training, etc. The Bureau of the Census

in 1940 asked a committee of the National Research Council's division of geology and geography for assistance on a statistical atlas.

Many advisory committees to Federal agencies have to a certain extent drawn on private studies to supplement the research program of the Government. Edwin E. Witte as Executive Director of the Cabinet Committee on Economic Security, often viewed as one of the most successful of the interdepartmental committees, arranged for the preparation of numerous special studies and memoranda by students of social security throughout the country.

Although it is difficult to tell how far the plan will go, in establishing what are called Key Centers of Information, the U. S. Office of Education implied that some research might be done for the Centers, using the faculties at the universities or colleges where these 140 Key Centers are located.

War-time Research on Post-War Problems:

The development of post-war studies has been considered by several agencies a suitable chance for welcoming cooperative research in industry, business, and elsewhere.

The Harvard Unit at Cambridge of the Post-War Division of the Bureau of Labor Statistics involves certain novel developments in research in the social sciences. The Unit is responsible for the so-called input-output analysis of the American economy, that is, an analysis of the total national production, its composition and flow through segments of the economy, under the direction of Professor Wassily Leontief on a part time consultant basis with the Department of Labor.

In its organizational set-up and operational procedure, the Unit is an integral part of the Bureau. The director chose the staff which was appointed in accord with Civil Service requirements by the Personnel Office of the Department of Labor. It is fully qualified to handle confidential data. The staff consists of eleven members: P-4, P-3, P-2, two P-1, and six CAF-3. Some members were transferred directly from Washington, others were taken from the Civil Service lists in Boston.

The work requires close cooperation with several other Federal agencies, for example the Department of Agriculture, which augment the Unit by assigning personnel temporarily from their own staffs. The senior member handles the administrative work and transmits the weekly progress reports, thus leaving the director free to concentrate on fundamental problems of research. The director in periodic visits keeps in touch with developments in Washington.

The location of the unit in a university has had certain correlative advantages. The unit was developed outside of Washington to avoid the congested conditions of the capital. It was located in a university center to gain the research advantages of such a center. This also made it possible to place the direction of the project in the hands of a part-time consultant, thus securing more consistent direction by taking the work to the director rather than bringing the director to the work.

The training feature of this procedure should also be noted. By a special, informal arrangement between the Department of Labor and Harvard University, all academically qualified members of the staff are entitled

to take one graduate course in the field of economics without payment of the usual fee, and the Graduate School of Public Administration is considering the possibility of granting another course credit directly on the basis of participation in the research work of the Unit. Most of the staff meetings of the Unit are open to graduate students and other members of the University.

On selected post-war projects, the National Economics Unit in the Bureau of Foreign and Domestic Commerce is working with almost two hundred business institutions. The Bureau, largely on the initiative of one of its officials, has encouraged certain lines of study by the Food Research Institute at Stanford University on the effect of post-1918 American relief distribution on the peoples of the world. The Bureau's expressed interest in the project permits the Institute to feel it is doing research which will be consumed usefully by the Government. A few of the post-war studies of the Treasury Department are being carried on by arrangements with scholars in university posts. The National Resources Planning Board and other agencies are depending on the American Library Association for studies on public library resources and standards.

PROCEDURES

Basic Interest in Farming Out:

The effective relation of Government research to non-Government agencies is not of great interest to some bureaus. Some agencies seem to pad or magnify their reports on the extent and meaning of their co-operative research interest. Many private research agencies have inquired how they might help the Government. They have sought out a variety of officials, sometimes only those known to them personally. While many unofficial hints can be dropped in this way, research directors are reluctant, or should be, to commit themselves either because of an inadequate analysis of their own problems or the fear of political complications where such research groups closely resemble "pressure" groups. Very often the inquiries are not raised in the proper place. But any serious directions or suggestions should be made only after the agencies or officials have pondered on the problems and their formulations.

An experienced Government research director urged that the specialists outside the Government should think -- they should not come first to the policy makers or to research directors to ask what to think. If they are experts in the field, they would be in a position to reflect on the situation and to raise useful questions themselves. Once these questions or studies are formulated, then it might be helpful to talk over the subjects with the various research directors most intimately concerned. Many of these individualistic "urges" depend, however, on getting some money. Thus it would seem that the Councils and the

foundations are obliged to keep up to date with problems and developments, and perhaps to examine more of their grants with a view to supplying Government needs.

The Formulation of Needed Projects:

The initiative for recommending specific research work and programs can come from both inside and outside the Government, from either the producer or consumer of research. Much indeed would be accomplished, for the Government and for those outside, by the very process of formulating objectives for research prior to farming out. Farming out depends on more coherence and direction in the formulated needs of the Government. This can be obtained through interdepartmental and inter-bureau committees, conferences and the like, and could be acted upon in certain instances within the organizational framework of the Science Committee or any more extended scheme of operations that might prove desirable.

The planning and scheduling of research, always a difficult problem, is not made any easier when a comprehensive national research program would be advantageous or a necessity in view of shortages of experts. Not all Government bureaus or private agencies have wanted or achieved such a symmetrical program for themselves. Contracting cannot be an easy remedy in such circumstances. Policy makers and imaginative research directors can think up more questions than could be investigated in a lifetime. What is difficult is to be certain that the formulation has some authority, and that it is not just an inspiration by which to waste other people's time. What is still more difficult is to get people to do the necessary

work. Also, a rigid "projecting" of research might interfere with research accomplishment.

The present work of the Science Committee or of the Councils acting separately can no doubt be fitted to the problem of securing these ever-changing formulations, to be presented in what might be called special invitations or research memoranda. But if the experience of the Social Science Research Council is considered, it will take some action beyond the formulation to get the research memoranda acted upon.

Experts outside the feverish atmosphere of Washington can profitably use their imagination to anticipate the needs, but they cannot be expected to have the necessary view of all Government research in their fields. Likewise, a liaison body or bodies should try to see that adequate intelligence is brought to the problems by the Government, in conjunction with outside groups, to insure a wise decision as to the priority of research projects.

Continually revised descriptions, properly classified and cross indexed, of the non-confidential lists of specialists and research programs of Federal agencies might, as with the Department of Agriculture since 1914, be a simple means toward aiding and correlating research outside. Ultimately, such reporting will have to be improved in all fields and with all kinds of agencies. And enough key people must be trusted with knowledge of the confidential program.

State experiment stations are encouraged in formulating research projects to follow an outline developed by the Committee on Experiment

Station Organization and Policy of the Association of Land-Grant Colleges and Universities which has devoted constant attention to the correlation of research activities for thirty years. The objectives should be reasonable, clear-cut and specific, the outlook should be constructive, the procedure should be suitable and up-to-date, and the cost estimates should be sound. In other areas where Government agencies are particularly active, there are many privately formulated and supported projects which might benefit from a voluntary, advance review by such agencies.

As we have seen, many agencies rely on advisory committees for suggestions. The Coordinator of Inter-American Affairs sometimes stipulates an advisory committee, with broad suggestions as to its composition, to supervise a project; subcommittees with staff assistants, occasionally with provisions permitting the work to be carried out at universities to which the specialists are attached, are provided, and the director has some travel money to be used for inspecting the work at research centers.

Research Organization:

Farming out no doubt requires a great deal of care, especially with studies where the properly qualified personnel is limited. But it is known that less formally trained persons, such as citizens with long foreign residence, have been drawn upon and could be used even more. It has been said that the only successful procedure for farming out is to find the right person to do the job! The irresistible tendency, once this person is found, will be to hire him to come root and branch to

Washington. While one cannot cavil at this desire for excellence, it may be observed that not all of the competent researchers are yet in Washington, and that the research demands may be so great that we shall have to use a little less than the best under proper supervision. A competent, sympathetic and active Federal research unit in any broad field of knowledge is almost a prerequisite, no matter what intermediary organization could be devised. It would be difficult to estimate what proportion of any funds would have to be earmarked for supervisory or administrative purposes, especially under any elaborate scheme.

Someone or a group of persons of some responsibility and competence must select or specify certain types of facts which policy makers need and the directions on which work could be stimulated outside. The Science Advisory Board, created by the President on July 31, 1933 for two years, included among its questions: Should a given project be handled by a Government bureau or left to non-Government agencies? Has the developing logic of the fields of research conditioned the research and statistical structure and functions of the Government units, or solely history, chance, tradition, or administrative needs? The same question should be raised concerning private research organization. If the first factor and the second group of factors do not make sense, and the confusion increases as projected into Government-private relationships, then the scope and effectiveness of cooperative research may be affected.

Any machinery set up to stimulate farming out would have to be very flexible. Any mechanism would have to make provisions for conveying the research results to the proper people. The following questions, similar to those already raised by the American Council of Learned Societies, March 21, 1942, in letters to its development committees, might be investigated more fully:

What fundamental research is possible with our present facilities and personnel?

What are those present facilities and personnel?

What additions to facilities and personnel are necessary?

What already existent nuclei can be utilized and developed?

What new organization, if any, is necessary?

Fundamentally, much of this information is already available and needs to be correlated with further information on Government needs and implemented by a purposeful interest on the part of the Government, particularly as trouble spots appear. It may be added that the demands for certain types of research may encourage within the university, in spite of war-time activities, a greater use of meaningful inter-departmental, inter-disciplinary approaches to the solution of research problems.

Some officials have suggested that their bureaus' needs in certain types of research could be met by employing on a part-time basis 10 to 15 scholars at neighboring university posts; the teaching schedules could be adjusted so that groups of three could be in Washington on full duty for three months. Many of the professors and consultants now in Washington are in a position to funnel suggestions, if nothing more, to their former colleagues and graduate students back home. This has been done now and

then in such agencies as the COI and OPA. Apparently appropriation committees have looked with favor on the funds allotted to the Office of Education for conferences, partly as a means of accumulating the findings of educators and research workers. Fellows have been assigned to do research under the guidance of an agency, for example, the American Library Association's arrangement with the Library Service Division of the Office of Education.

The Associated Defense Committees of Chicago Technical Societies several months ago issued a memorandum proposing "National Associated Defense Committees" designed to make fuller use of scientific personnel and facilities in each locality and to serve as a field organization for the OSRD, the National Inventors' Council and the National Research Council. Such committees were also to "locate less prominent although thoroughly reliable research facilities and personnel."

Generally, any elaborate proposals made for the social and humanistic sciences have indicated the need for an emergency Federal agency or an intermediary research clearing office representative of the learned councils and professional associations, possibly with a field organization of university faculties and professional societies and local coordinating committees, to give attention to the matter of farming out, a two-way interchange, and the research possibilities of smaller institutions.

The Problem of Confidential Data:

It is well known that part of the compensation of the academic man is the prestige value of research publications. He publishes more in technical journals than the government research workers or the Scientists in

industry who, often under much greater anonymity, have a different idea of the end purpose of research as an aid to policy or the profit of the company.

The problem of research data is serious enough for the person in Government service; it is becoming even more serious for the outsider who wants to do important work. It is often impracticable to take time out to sort the confidential from the non-confidential material which might be used. But it must be assumed that no specific invitation to do certain research work would be issued unless the Government had some confidence in the organization or the individual. Hence, granted such evidence of responsibility and loyalty, there is little reason why this Government material, under proper safeguards, could not be made available if necessary. Under such conditions, it would be better for the Government to have the research results than a mass of unused material. Necessary restrictions on the publication of such material could be maintained until a suitable time. Perhaps one should not stress the use of "confidential" material because there is much easily available data that needs analysis. But it has been stressed here for the simple reason that researchers on the Government pay roll, if they do think of sub-contracting, often think solely in terms of giving somebody else all of the "dead fish."

The OSRD specifies that "The Contractor agrees never to disclose any information concerning this contract or obtained as a result of the work called for...to any person, except employees assigned to such work, without the written consent of the Contracting Officer or his authorized representative."

On several occasions, agencies which recognized the value to themselves of specific studies have made confidential material available, safeguarding their responsibilities by making the investigator a dollar-a-year worker. Federal agencies and their newer employees fresh from private research agencies easily forget that confidential data representing considerable money investment may be in private hands. The appeals from the Government bureaus for such data, activated by the inside information of the new employees, should not be so whimsical or haphazard as to provoke ill-will.

It should be pointed out that the Government, as the greatest collector of data, can also offer some inducements by making available to a volunteer, responsible scholar certain data, confidential or otherwise, that might not be available elsewhere. This offer will frequently be enough to secure the most active type of volunteer effort, capitalizing on the very human and professional desire to make use of the latest or best or most comprehensive material.

Research Results:

Earlier some attention has been given to the great importance in the research process of transmitting the research results once they are achieved. In most instances, the research process is not completed until the research results are conveyed effectively to an audience who needs it. This is one of the most serious problems of modern research, and it is not always properly considered by Government agencies. For example, the funds of the Adams Act cannot be used for defraying the publications costs of the resulting agricultural research. It would be important to assure funds for timely

publication of research results. Agreements often specify that the research report becomes the absolute property of the Government with provisions that publication, by the contractor or the Government may be arranged in an agreeable manner.

It requires little imagination to realize the research results in all fields, and not just in the social sciences, can be troublesome for the policy maker who has to produce decisions. One need cite only the controversies over air and liquid cooled airplane motors, standards of foods and drugs, and even batches of statistics, without any "subjective" analysis, on regional impoverishment.

The role in our sensitive society of supplying facts through Government agencies which often are regarded as favoring some interest group is not as safe as it would seem. The civil servant may work anonymously, and the private contractor may be enjoined to do so, but the studied information, to be useful, must become available. What may look like undramatic research frequently leads to regulatory legislation, and alters the adjustments and functions of Government agencies.

Congress is not in the habit of appropriating funds that might use a combination of Government and non-Government work for essential publications. Congress itself, through its Committee on the Revision of the Laws, has used the well-known Thompson and West companies for editorial work on all three editions of the U. S. Code and the 13 supplements since 1926. The Social Science Research Council subsidized most of the expenses for Bemis and Griffin's Guide to the Diplomatic History of the United States, and the Library of Congress cooperated and published it. The Children's

Bureau has appropriation authority to purchase reports and materials for the publications of the Bureau, and for reprints from State, city, and private publications when such reprints can be procured more cheaply than they can be printed by the Government; the Women's Bureau also may purchase material for reports. Contracts of the Coordinator of Inter-American Affairs provide funds and a dead-line for publication by the sponsor.

The U. S. Public Health Service, in order to stretch its publication funds, asked permission in its 1943 budget to purchase reprints of articles based on investigations in its laboratories, but published in scientific periodicals. A full survey of the possibilities might indicate that other agencies could attempt to use this procedure more often if their printing funds are deleted or inadequate, if the desired circulation could be achieved, or so long as it did not jeopardize fundamental official publications. The purchase of reprints, however, does not help to rescue impoverished private periodicals. The suggestion immediately comes to mind that if the war demands on the budget and personnel of Government agencies will curtail important publications, outsiders might be called upon to help.

The Departments have another difficulty in steering between flooding Congress indiscriminately with research problems and reports and not informing them at all, except on request or inadequately, if at all, during appropriation hearings. Reporting on genuine research to Congress--and the public--is so important that research directors and department heads must never be satisfied with existing habits.

Federal Financial Support or Not?

The Government can assist by furnishing funds or data or facilities. As will be pointed out, there is a large supply of untapped volunteer energy and research sponsored by private funds. But in view of the extensive funds spent on scientific and medical research, it is questionable how far the Government should expect research in other fields to be produced free of charge. A Government department will after all be the sole arbiter on the issue whether it can legally and profitably afford to use its regular funds for sub-contracting, or whether it would try to secure emergency funds. In each instance, where there is cost to the Government, it would be necessary to determine the comparative costs of doing the work with regular personnel in Washington or outside. This is not easy because of the difficulty (or reluctance) in drawing a sharp distinction between administrative and fact-finding costs. There is not necessarily a definite relationship between the importance of research and the size of the research funds.

The question and the problem of Federal over-all support to research are so important that a more general discussion is necessary.

The types of aid are few, and the bases for their determination vary considerably; but frequently the aid has been used to achieve a national minimum of service. In the war period the support for research may hardly call for a symmetrical basis; in the post-war period, the issue will be renewed. Admittedly, it will be difficult to divorce the desirability of a high standard of research activity from a similar standard for education and training in the institutions of higher education. Contracting and

informal cooperative relationships make up for the absence of a more formal relationship.

Practically the first Federal grants made to States went for agricultural education and research, followed by grants for forestry, highways, public health, unemployment relief, public employment services, public assistance, and unemployment compensation administration. The extension of the subsidy system to various services, as for example in relief and recreational services, may frequently mean that such grants cannot be used efficiently without further research investigations at the State and local level. In connection with the administration of the maternal and child-welfare services under the Social Security Act, the Children's Bureau planned with other agencies, particularly the American Public Health Association, for the development of examinations for professional personnel and the training of subject-matter specialists.

It is better that these investigations should precede operation, possibly carried on by existing research facilities. To some extent, then, it must be recognized that an expansion of administrative activities often entails the need for research to assure maximum results. It is conceivable, as so happens with the national grants for agricultural education, extension, and research, that the different purposes of education, extension, and research may not possess equal interest or importance in each State. The present State boundaries, historically important, but often accidental and haphazard with respect to many modern problems, might conceivably affect unfavorably an extension of research assistance by Federal grants to the States.

The selection of research activities for support may be determined by political forces. No easy routine and no simple use of budgetary machinery can give the proper estimates from the national viewpoint as to the relative values of various research programs. If Federal funds are to go more and more into research, systematic information must be collected to use as a basis for selections. It is a question for speculation whether research per se should be subsidized by general grants to research institutions, or more specifically, by grants for the problems or the fields of knowledge.

Federal funds made up but 5 per cent of the current expenditures of institutions of higher education during the school year 1933-34 (1,357 institutions reporting), and 6.8 per cent during the school year 1939-40 (1,609 institutions reporting). Not all of these institutions are important research agencies, but they are the backbone of our national research structure. Any slight increase in the relatively small contribution of Federal funds will probably generate a disproportionate national discussion. Obviously, from the viewpoint of national strength, research would mean little by itself if our higher educational system began to suffer seriously from wholly inadequate income. But is it not possible that because of the Federal experience in Federal-State relationships, that any increasing Federal subsidy might most expediently be ear-marked for research which has a tendency to be national in significance, thus freeing other non-Federal funds for other purposes?

A difficulty, should this suggestion seem to have merit, is that the easiest pattern to follow would be the Federal aid to the land-grant colleges which have been responsible for some of the dispersion of energy in

higher education. The agricultural colleges opposed several of the recent bills for business and economic research and contended that the original acts implied that they should get any additional subsidies, such as for engineering research. Long established relationship may enable certain research agencies to magnify unduly their importance. These institutions, and the closely related experiment stations and the well organized interest groups, have played an important role, but they should not in all cases, on the basis of historical importance, research prestige, or other criteria, receive more consideration than State universities and other publicly supported institutions, and private colleges and universities. The practice of contracting to get results at the present time will give some proof of this observation, and will leave a residue of experience that will be most helpful in facing such issues in the future.

The suggestion assumes that expert guidance, through Federal and State bureaus, in conjunction with learned councils and professional associations, could give expert and broad judgments in the supervision and allocation of research funds on specific points in view of national needs. The British experience since World War I with the extensive arrangements made through its Department of Scientific and Industrial Research would be pertinent on this point. No doubt it would be easier to turn Federal funds to the supply of heat, light, deans and stadia with less chance of Federal domination. We always have had ghost colleges and universities, and any Federal subsidy should not perpetuate them or proliferate them. Inadequate colleges never seem to die by any recognizable laws of nature. Such Federal funds should not be used to increase unnecessarily the

duplication of facilities or the dispersion of resources within the States. Also the distribution of Federal research funds to the States through regional laboratories, such as those established in the Bankhead-Jones Act, is probably a better technique than the development of Federal field stations..

.. Joint financing of a more permanent sort may put a high premium on a particular research activity which has outlived its usefulness. But adequate supervision and technical assistance on the part of a central agency would guard against this danger. The matching of Federal aid by State or private funds would also be another checking point on efficient operation. The project basis for budgeting research funds is probably the most effective. If the OSRD is of the opinion that the work cannot profitably be carried to conclusion, the agreement can be terminated upon 30 days' notice. The NRPB often stipulates that the contractor should give consideration to the Board's suggested modifications of a report.

For research purposes, the audit of accounts is less useful than advance review and approval of research projects which makes possible a timely cooperation in technical advice. After the Adams Act in 1906, the submission of research plans to the Office of Experiment Stations helped to reduce undesirable duplication. Since the Smith-Lever Act of 1914, advance approval of plans have been in most Federal-aid statutes. Congress in 1934 did not include the permanent appropriations for grants

for land-grant colleges, agricultural extension work, and vocational education in the bill to subject a series of fixed appropriations to annual review by Congress. This illustrated the strength of the Association of Land-Grant Colleges and of the American Vocational Association. State officials administering Federal grants can use the support of their political relationships, and can approach Congress almost more directly than agencies at the Federal level. Any extension of the subsidy system might make this a serious problem which would call for proper administrative solutions. But it must be noted, as the proponents of the bills for economic research observed, that increasing support for research in certain directions in the States would make it easier to persuade Congress.

Since the National Resources Planning Board's recommendations on research in 1938, Government agencies have achieved more latitude in the use of research funds and the employment of competent researchers wherever they are to be found. Emergency agencies especially are freer to secure services of experts or temporary appointments without regard to nationality or Civil Service classification. And most agencies could, if they thought the problem through, request the necessary authority. The procedures and funds are such, however, that the contracting party draws on what exists, sometime with very little concern as to how the research agency was built up, or whether the total research strength of the country is thereby improved. Some financial inducement is generally deemed essential, but the fact remains that contracting is often a form of masked exploitation.

The OSRD funds allow the purchase of necessary laboratory equipment, certain expenditures for insurance premiums, and carefully estimated allowances for overhead. Under WPA, but to an extent hardly applicable for research purposes, the Federal agency paid, through Federal disbursing machinery, personnel used by the State or local governments on their projects. The NRPB occasionally provides for the submission of public vouchers, monthly or from time to time, itemizing necessary expenses, usually accompanied by reports of progress. Several agencies have worked out careful provisions for additional administrative expenses to relieve the strain on the contractor. Usually private agencies contribute the time and services of their officers and the facilities of their office.

Within the procedures most likely to be used during the emergency, the Government will hardly be seriously troubled by the diversion of research funds to teaching purposes; where the situation demands it, the division of time between research and teaching should be determined in advance.

Federal Control:

The recurrent debates over Federal aid to higher education closely concern the research strength of our higher educational system. The fear of Federal control prominent in this debate extends to research. In addition, there is the Congressional reluctance to make fixed charges on the national budget. The American Library Association has conducted a campaign to secure Federal support for libraries which in a very intimate sense have relations to our research resources, but perhaps several

steps removed. It would be serious, however, should the legitimate national claims for Federal support of research, amid the competitive demands for Federal funds, stress even more the fear of governmental control. Federal dictation has hardly been a great danger in the support of agricultural research.

The development of contracting and of cooperative research has some dangers for the autonomy of the university, especially where an action program might be intimately related to a research program or involve the research unit in administrative affairs, as in recent years with the action programs of the Department of Agriculture as related to experiment stations and land-grant colleges. This problem will become increasingly important for our higher education, and with some differences, for our business and industrial organizations which carry on research. There is no doubt that during the war, private research organizations have entered upon contracts or cooperation in research programs which are heavily underpinned by pre-determined policy, and official assumptions and action. And at least professional dignity would prevent them from carrying on simultaneously independent, critical investigations of Government research in the same fields. Apart from these curbs on the pursuit of knowledge, very few research agencies wish to have any executive responsibility. This is not to say that one should distinguish too sharply between Government and non-Government, or contend that private research institutions should not attempt to anticipate the information and research needed for the formulation of policy or the prosecution of action programs.

The power to withhold Federal funds has not the strength commonly believed. In recent years, the Office of Experiment Stations has withheld funds more frequently and records the reasons for so doing. The fear of Federal domination or restrictions on the course of research development through Federal grants is always present, but should not be exaggerated. The Advisory Committee on Education in 1938, with eyes on the experience in agricultural research, recommended that beginning with July 1, 1938, there should be Federal grants for educational research, demonstrations, and planning of \$1,125,000, increasing to \$3,000,000 in 1941. The Committee stated: "The system of cooperative research accompanied by demonstration projects throughout the country, which has been successful in the field of agriculture, is conspicuously lacking in the field of education...The entire fund should be available for expenditures under the direction of public and private nonprofit institutions or agencies approved by the Office of Education, on the basis of cooperative projects jointly agreed upon." A joint agreement for each cooperative project could allot the share of Federal, State, local, and private funds. These grants for cooperative educational research were the only new grants recommended for immediate action by the Advisory Committee.

In 1935, the Science Advisory Board recommended an appropriation of \$1,750,000 a year for two years to the National Academy of Science for distribution, through the National Research Council, as grants-in-aid of research in non-profit making institutions in such manner as the Council would deem most useful for the advancement of public welfare

through science. The Board considered grants-in-aid to be the best procedure thus far devised for putting limited sums of money effectively into scientific work. Each grant was to be the subject of a contract between the National Research Council and the recipient organization which would be obliged to report. The scientific program envisaged suitable cooperation with the Social Science Research Council.

The Attitude of Congress on Farming Out Research:

During the budget hearings for 1943, the House committees seemed to be toying frequently with the hope that there might be some sub-contracting of research work. In view of the fact that it has often been said that Congress opposes this part of a solution to the Government's research problems, might it not be well to inquire whether the agencies themselves have been reluctant to let go of any research work? To be sure, the Congressional committees might look at this method primarily as a way to save money, and such it might be, even though some compensation were provided for.

Congressman Rabaut took time to read a part of the justification statement for the Bureau of Foreign and Domestic Commerce as something very commendable, and something which had not been brought to his attention previously. What appealed to Mr. Rabaut was the following:

"Much of the necessary business and economic research essential to the operation of this war that may otherwise have to be done by the Federal Government, might very well be placed upon existing university and private research organizations. During this war period, it is the policy of the Bureau to encourage and direct these private research organizations to engage in as much, and as many, of these new tasks as it is possible for them to do. This requires mobilization, reduction of duplication, and wider use of these private research projects both by business and Government."

Mr. Rabaut added, "It shows you are stepping into the field of research for the benefit of the whole program...."

The Bureau, it will be recalled, has published since 1940 an annual called Business Research Projects, and has made definite recommendations for studies in such processed publications as "Selected Research Topics in the Fields of Business and Economics." both in cooperation with the National Conference of State University Schools of Business. By themselves, these items mentioned above are only one of the means or tools for carrying out an over-all, authoritative program that would bring in tangible results. Such surveys are a general invitation to all comers, not a proof that the necessary research will result.

Available Private Facilities:

Probably nearly all organized research groups have been affected by the war without too much attention paid to the net national gain or loss in the process of picking off the key men for Federal service. Many agencies have put themselves at the service of the Government; perhaps all the others could adapt themselves, even under present strains, to an effective procedure. Judged by the criterion of getting significant research, the Government may be lavish in its demands. That the Government would care to retrace some of its steps to restore such research units to their previous strength is very doubtful. This consumption of trained research personnel is a tribute to enlightenment so long as we are able to live on the hump. However, a studied conclusion would have to be based on a detailed input-output analysis of Federal research which has not been made and probably could not be made.

Learned councils, industrial and scientific laboratories, universities, foundations, research institutes, professional associations, and individual experts all constitute a source that may be tapped by contracting or by cooperative research, and are generally agencies which can be entrusted to safeguard Federal funds. The facilities and personnel for research have altered so rapidly within the past two years that decisions would have to be based on current facts and not on previous records of accomplishments. A warning sign appears in the testimony of the OSRD before an appropriation committee: "It is probable that provision will have to be made for the services of specialists now available to us without compensation, since the requirements of the Selective Service Act have resulted in lowered university and college enrollment which will limit the extent of the cooperation which universities and colleges can afford."

The learned councils were organized at critical periods of research development and history, for example, the National Academy during the Civil War, the National Research Council during the World War. They represent a convenient tool, and contracting has helped them fulfill their original purpose of stimulation and coordination of institutions and individuals engaged in research.

The National Research Council is composed of representatives of about 85 national scientific and technical societies, grouped into 9 divisions; the Council's total membership is about 220 scientists, including representation from research agencies of the Federal Government, and to which must be added about 1150 additional persons drawn into close association with the Council through membership in numerous committees.

Increasingly in recent years, the Federal Government has called upon the Council as an operating agency of the National Academy of Science under the general authorization contained in the Academy's Congressional charter of 1863, which, incidentally, covered both science and art. In addition, the Council on its own initiative, and by supplying developmental expenses, has organized projects the results of which might be offered to the Government. During the year ending June 30, 1940, the expenditures on Government projects amounted to nearly \$150,000; since then this figure has increased. The request of the Air Corps of the War Department for a survey of the cost of aircraft production was referred to the Council's division of engineering and industrial research. Two years ago, acting upon informal requests from the Surgeons General of the Army and the Navy, numerous committees and subcommittees were organized for studies on problems in military medicine.

In its intensive language program for instruction in unusual languages, the American Council of Learned Societies on private funds has used some of the informal procedures for sub-contracting. This program has been directed to meet the ascertained needs of the Government. The Council has also helped to develop personnel and research in neglected areas. In addition, the ACLS acts directly for certain Federal agencies, and as fiscal agent for substantial Government funds for emergency activities. The American Council on Education carried on surveys of personnel at the instigation of Government agencies; it set up a subcommittee of the National Committee on Education and Defense to study with the Treasury Department the sale of war bonds and stamps in schools.

The NRC, ACLS, and the Social Science Research Council initiated and contributed to the establishment of a tri-Council Agency in view of the urgent need of making available to the various branches of the Government the knowledge of foreign countries possessed by American scholars and scientists. This "Ethno-Geographic Board" consists of scholars representing the interests of the various Councils and the competences of American scholars in various fields. The Director has an office in the Smithsonian Institution which will contribute his salary for the duration of the war. His principal duties will be to learn the needs of the various Government services, assist in formulating them, and to see that those needs are met by drawing upon the resources of American scholarship. The Committee on Latin American Studies (ACLS), now a Joint Committee with the SSRC and the NRC, blocked out a program that could be undertaken with special reference to the present official needs of Washington. Indeed, where they still exist intact and active, various other committees of these Councils and professional associations might be used.

The common interest of trade associations is economic rather than intellectual. Their membership, functions, and staff vary greatly. The first World War brought hundreds into existence; the second World War thus finds a mobilization of strength which is very important, even for research purposes. It is true that a trade association may frequently not be the focus for the industry in technical research, or in the compilation of original statistics. Of the 1900 national and interstate trade associations listed in C. K. Judkins' Trade and Professional Associations of the United States (1941), 550 list commercial or market research and 420 list technical or

industrial research, as a major activity. By 1941, about 500 national trade (and professional) associations had headquarters or branch offices in Washington. This concentration bulks only less than the total for New York or Illinois.

In many instances, the trade associations have maintained frequent and useful relationships with the research and service branches of the Federal Government, and not solely with administrative agencies. Although the associations as such have been used on research matters, there is reason to believe we have not fully and systematically exhausted or developed the possibilities for stimulating research by this adaptable mechanism.

Many of the research grants made by universities and other organizations are for studies closely connected with Government agencies. Beyond a certain saturation point, such grants might better go to fields not covered by extensive Government cultivation. Foundations have set aside funds in order to meet official war requests. In addition, private agencies have frequently made grants to Federal bureaus for research in many fields, either for long periods or for experimental developments. One might cite the grants to the Library of Congress for supervised fellowships and radio research, to the Office of Education for experimental purposes on emergency services to the schools. This procedure is mentioned merely because it represents a relationship that might carry a two-way traffic at a time when Government bureaus are hard-pressed with war duties.

Private organizations can often use experts of foreign nationality more conveniently than can Government agencies. Organizations like the SSRC, the Carnegie Endowment for International Peace, and the Council on

Foreign Relations, and sometimes universities, are often in a favorable position to call representative research conferences of Federal officials of different agencies and other experts at opportune moments in lieu of more formal arrangements.

No extended analysis is given here of the role of advisory committees attached to Government bureaus; by their very composition they often transmit the findings of outside agencies as well as the expert conclusions of private members of the committees.

So long as other experts are on the Government pay rolls, sometimes at no great sacrifice to the individual -- and there is no reason why the skilled researcher or scientist should discount his contributions -- it would be difficult and unwise to expect that all of the significant research farmed out should be done on a voluntary basis. Nor should any invidious distinction be made for assistance or recognition as between technological research and that for other kinds of research work. Certainly in the absence of compensation or assistance, some token should be given to indicate the service of those outside scholars; such a token would also help the scholars to resist the less important demands upon their time. But the problem of farming out should not be approached solely as a measure of economy or a boost to morale.

Work Suitable for Farming Out:

The areas of research suitable for farming out are, as we have seen, almost unlimited. The more extensive cooperative arrangements in certain fields might be an indication of the strength of different scientific professions and facilities, but not entirely. A little exploration would

show what problems or fields would be suitable for contracting. Many studies will readily suggest themselves: the organization and function of Federal agencies and programs in the field, research on foreign-born cultural groups in the United States, international relations in the broadest sense to include cultural relations, post-war studies, etc.

The knowledge we will have to have for post-war readjustment alone exceeds the capacity of a war Government. Here, after a formulation of the problems, outside researchers might intervene creatively -- individually and through their professional associations and journals. For example, assuming some sort of occupation of Europe, what are the procedures to be adopted to get the younger generation of the Axis or Axis-controlled countries to cooperate with free peoples? But there is much waste motion, and often very little beyond elaborate indications of the awareness of needs. Many of these organized research groups have been relieved temporarily of responsibility by having furnished the Government with qualified personnel. One senses the desire to think creatively, to search for social facts, but one does not feel that there is enough direction or persistence left over to carry out the basic work for elaborate studies. In this sense, contracting might be a shot in the arm.

It is fitting that Government research directors, or other officials, should attempt to see whether their research programs which have suffered because of new duties or demands in Washington, presumably projects which were considered significant after due deliberation, might not be rescued and continued by private agencies. Such a transfer could be made and assisted in many instances without much trouble on the part of the agencies.

With a little more imagination concerning the nature and demands of "total" war, there are certain types of trained personnel, such as the specialists in literature, who could be used. This is especially true if it is admitted that many war demands, of greatly varying importance, have been placed upon research personnel, and that it might therefore be fitting to enable scholars trained in research methods in all fields to focus upon work where that training is useful. The work carried on by the British Council and by agencies of other countries might indicate that they have proceeded further to enlist the expert support of social and humanistic research, as a sign of national strength, as an indicator, even in so-called "useless" cultural pursuits, of national prestige, in a way comparable to the scientific round-up begun during World War I.

Much of the Government research in the social sciences is mostly descriptive and might not be called research by some scholars, by comparison with the set problems for the natural and physical sciences. No doubt there is greater difficulty in explaining the practical or applied meaning of social research, and this would have some effect on the farming out of research.

Canadian and British Experience:

Although generally American experience with cooperative research probably exceeds that of any other country, we may note briefly certain arrangements in Great Britain and Canada. The recently established Nuffield College Social Reconstruction Survey is an independent university enterprise which works, however, on a small Treasury grant and on specific terms of reference

agreed on with the Minister in charge of reconstruction; its investigations use the regional machinery based largely on universities and colleges throughout Great Britain. On agricultural aspects of post-war studies, the Oxford Nuffield College and Oxford Institute of Agricultural Economics have made joint plans to be sanctioned by the Agricultural Research Council and the Ministry of Agriculture and Fisheries. Political and Economic Planning (P E P) was asked to submit a memorandum on the British social services to the Cabinet secretariat on reconstruction.

In Canada, as in England and the United States, the greatest use of farming out centers in the scientific and technical field. This has come about partly because of the status and machinery of the National Research Council of Canada (established in 1916) which has charge of all matters in Canada which may be assigned to it by the Committee of the Privy Council on Scientific and Industrial Research. The Dominion Government makes substantial annual appropriations to the Council, almost two million dollars in 1940. Very little has been attempted in social research. The Canadian Social Science Research Council stated in its first annual report, 1940-1941: "There are many projects, of great significance to the social sciences generally, which have potential implications that place them outside the realm of investigation by government officials." It urged the establishment of special institutes, privately financed, to collaborate with the Government.

Cooperative arrangements exist between the Dominion and Provincial Governments, but are much less extensive than in the United States. In recent years, two-thirds of the projects of the Economics Division of the

Department of Agriculture have been in cooperation with Provincial departments of agriculture, colleges of agriculture, utility boards, economic councils, etc.; the staff of the cooperating agency is employed with the Division's staff both in field work and in the analysis and preparations of reports. Frequently, Provincial officers or university staff members are quartered in the Ottawa office for periods of months or years, and the Department's staff members have been stationed with other agencies. For about seven years, the Economics Division has maintained a staff of from 8 to 12 persons in the economic and farm management departments at the universities of Saskatchewan and Alberta. Each department assumes its own expenses and publications are issued by either party depending upon which initiated the project. It is possible that local and city governments may have done more farming out than the Dominion Government. The City of Ottawa has on several occasions employed economic research agencies and accounting firms to conduct research or investigational work. The Dominion Bureau of Statistics frequently places university teachers on its staff during the summer months; they are encouraged to take some of the problems home with them.

The inter-departmental General Advisory Committee on Demobilization and Rehabilitation proceeds primarily by the method of consultation and committee. It was felt desirable that the Advisory Committee on Reconstruction, appointed in 1941, and reporting to the Cabinet Committee on Demobilization and Re-establishment on the developing ideas, proposals, and projects relating to the post-war period, should not be members of the civil service. The members associated with university administration

were to bring to the Committee a keen sense of the specialist, scientific, and research resources available in Canada. Individual specialists in universities and business firms were engaged to prepare reports, and work was done in cooperation with local bodies, with the economic section of the League of Nations, and semi-official bodies in England. This is one of the few groups to use outsiders. Some of their research projects were placed before the Canadian Social Science Research Council, but the Council was unwilling to undertake them.

Cooperation with Other Nations:

The modest studies undertaken by the Joint Canadian-American Committees, but making no use of private agencies, might be considered a co-operative research program as between nations. As the war develops, it is possible that more formal, elaborate provisions would be made for projecting research as between our Government and private research agencies and those of our Allies. There is, of course, considerable precedent for research work divided between private organizations of different nations, especially in science, and in the activities summed up under the phrase, International Intellectual Cooperation. Our National Defense Research Committee has a London office, and the British have a Central Scientific Office in Washington. Some of the studies of our Army and Navy in aviation medicine are divided with Great Britain. Further, the Office of Scientific Research and Development is authorized to "Initiate and support such scientific and medical research as may be requested by the government of any country whose defense the President deems vital to the defense of the United States" and "to serve as the central liaison office

for the conduct of such scientific and medical research for such countries." The Office of Economic Warfare Analysis of our Board of Economic Warfare maintains a close relationship with the British Ministry of Economic Warfare to pool information.

The BEW asked for over \$600,000 for 1943 to secure technical advisory services to assist friendly foreign industrial programs. The Coordinator of Inter-American Affairs asked for \$500,000 for similar objectives, with some provision for the interchange of experts. The National Indian Institute, using the facilities of the Office of Indian Affairs, as described in an Executive Order of November 1, 1941, is to promote collaboration in the study of the Indian with government and private agencies here and in other American nations. A study of nutrition is now under way on an international scale. In a general way, the establishment of the Division of Cultural Relations is an important step toward official support for international scientific enterprises.

The Range of Arguments:

It will be useful here to summarize some of the opinions for and against any more energetic effort to utilize non-Federal facilities for research.

As several officials have observed, many of the reasons for and against contracting with outsiders would apply almost as strongly to Federal inter-agency, intra-agency cooperation. From the viewpoint of the national budget, there can be economical or wasteful farming out within the Washington bureaus and departments; if such farming out were carried to extremes, the situation might well suggest an overhauling of administrative machinery.

Philosophical and political objections to contracting have been raised. The delegation of research means a delegation of responsibility, and opens the way for the presentation of "pressure" views. Departments and agencies are beginning to fear that economy measures will seriously curtail their research work; therefore any use of existing funds for outsiders would be the basis for an adverse decision by the Budget Bureau or Congress. Such outside research would be "irresponsible", and would not obviate the need for having one's own staff ready to fall to.

The close and valuable interchange within the offices of the researchers and the administrators would be lost so that the research could not maintain the proper focus. Since many of the research units' approach to problems would be in terms of their administrators' everdeveloping conception of policy and struggle for power, it would be difficult to make an authoritative formulation. By the time the results came in, the director who had an interest in the proposal might be dead or in another office.

Research to amplify results for the Government's needs should and will continue pretty much along the lines of the past. The problems farmed out could be only of the long-term kind requiring basic research, and the persons expert enough to bring in any valuable contributions are expert enough to formulate a comprehensive consideration of the research problems and anticipate the needs without Government help. The war organization of the Government has been set up for the very purpose of seeing that it gets the information and research which it needs. Any effort to go beyond this would merely put more burdens on very busy people. Unless very innocuous subjects were delegated, the demand for certain data to supplement

the research would become troublesome; but it is admitted that such difficulties have been partly overcome in the scientific field.

It is already difficult enough to find the pertinent research results as between Government departments. It would be futile to expect that the proper machinery could be devised to bring outside research results, under such a stepped-up program, before the proper persons. The fear has also been expressed by outsiders that the research, if containing facts unpalatable for the departments, would be pigeon-holed. One cannot overlook the fact that the feverish war atmosphere has disturbed the equilibrium of many scholars who are anxious to be in a position to direct someone else to do the hard thinking, and the hard digging for facts, for which they get the credit. The most competent research workers are already in the Government services or otherwise totally occupied, so that the Government would be entering a field to secure nothing but very marginal, twilight-zone assistance. (This is a comforting statement, but rather arrogant.) Contracting may interfere unduly with the national program by stressing local needs. A more regular Congressional appropriation might be limited to matching State appropriations, thus injuring the needed research program by distorting it according to the ability of states to contribute.

Other persons maintain that none of these sensible observations should prevent farming out if the Government seriously needs more and more facts and knowledge for the best conduct of its affairs.

The arguments supporting decentralization take the following turns.

It is desirable, in view of the encyclopedic needs of the Government, to attempt to achieve a comprehensive consideration of the problems which is impossible in the pressure of Washington. For purposes of training, and for insuring a certain continuity of research, it is desirable that attention be given to the maintenance of our research capital, and to make certain that scholarly enterprise does not develop a sense of frustration in a war period. It is not sound, even if it were possible, to have all of the nation's research units, which are often teaching and training units, broken up or dispersed to become employees of the Government, especially in Washington.

In some instances, the Government might free its own research workers for the more expeditious handling of problems requiring immediate attention. Examples on this point were multiplied with ease.

A desirable by-product would be that the research activity of the nation would be stimulated in a purposeful manner. Such cooperation developed during the war, especially in the social and humanistic sciences, would leave a useful residue of experience and procedure for the post-war world. If properly managed, farming out might serve to vitalize professional associations and the relationships among them. The procedures developed would imply that a step forward had been taken in the planning of research; they would provide an exchange of views and criticisms which would be mutually advantageous.

If all of the inevitable farming out is left entirely to the individual whims of the research director or casual hints, there will be a dissipation of the energies of our research personnel. The decentralization

would be a practical education for the advanced researcher and for the remaining graduate students. Many of the national studies undertaken in Washington would be complemented by regional or State studies undertaken within a national framework. The history of research shows that it is good to have some research produced in different environments. Research data may be fuller outside of Washington. The Government as always is in need of more research results than it can expect to command from its employees.

The gist of this section is that, with the exception of certain refinements and additional details, enough is known about the procedures for using non-Federal research facilities to undertake practical operations. This might be done piece-meal, or in trouble-shooting fashion, problem by problem or area by area, as the circumstances dictated. Further, it is obvious that contracting is affected by the existing personnel, the fields of study, the nature of the problems posed, by the structure of Government and non-Government agencies, and by the community of interest -- or the lack of it -- of agencies willing to serve the nation as a whole. It would be safe to use whatever we can, wherever we can, and as soon as we can.

Appendix 1

Specimen Form of the Office of Scientific Research and Development

Contract No.

MEMORANDUM OF AGREEMENT made this day of 194 ,
effective as of the day of 194 , between THE UNITED STATES
OF AMERICA (hereinafter called "the Government"), represented by the Ex-
ecutive Secretary (hereinafter called "the Contracting Officer"), Office
of Scientific Research and Development in the Office for Emergency Manage-
ment, Executive Office of the President, and

(hereinafter called "the Contractor").

WHEREAS, the Contractor conducts and maintains an experimental testing
and research laboratory or laboratories and the Government desires that the
Contractor conduct studies and experimental investigations in connection
with

NOW, THEREFORE, THIS AGREEMENT WITNESSETH:

The Government agrees to reimburse the Contractor, upon public vouchers
supplied by the Government, certified by the Contractor, and approved by the
Contracting Officer or his authorized representative, for the actual cost
to the Contractor of performance of the work required under

in an amount not exceeding

All vouchers submitted shall indicate, with respect to each class of items
listed by the Contractor thereon, the particular subparagraph, below, of
this paragraph, under which reimbursement is claimed, and shall be supported
by original invoices, itemized bills, excerpts from payrolls, or other appro-
priate substantiating documents, certified by the Contractor on the face
thereof to be correct and paid. Reimbursement payments shall be made

"Actual cost" as used in this paragraph shall include the following only:

(a) Expenditures by the Contractor for salaries and wages
of its employees directly engaged in the work required under

plus Federal and State Social Security taxes payable by the
employer with reference to such salaries and wages;

(b) Expenditures by the Contractor for such materials, supplies, apparatus, equipment and other articles (including processing and testing thereof, and rental of apparatus and equipment) as are necessary for performance of the work required under

(c) Allowances for overhead not exceeding in amount per cent () of the total salaries, wages, and Social Security taxes reimbursed under subparagraph (a);

(d) Expenditures by the Contractor necessary solely for performance of the work required under for long distance telephone calls, telegrams, cablegrams, radiograms, postage, freight, express, and drayage;

(e) Expenditures by the Contractor necessary for performance of the work required under for the traveling expenses of persons directly engaged in such work, plus the actual subsistence expenses of such persons incurred during periods of travel or, at the Contractor's option, an allowance, not exceeding five dollars (\$5.00) per person for each calendar day (midnight to midnight) during a period of travel (or, for fractional parts of a calendar day, $\frac{1}{4}$ of such amount for each 6-hour period or fraction thereof), in lieu of the actual subsistence expenses of such persons; Provided, That expenses for travel hereunder by motor vehicle other than common carrier shall be reimbursed on a mileage basis at a rate not exceeding five cents (5¢) per mile per vehicle, in lieu of the actual expenses of such travel;

(f) Expenditures by the Contractor for insurance premiums authorized or approved by the Contracting Officer as constituting part of the actual cost of the work required under

(g) Expenditures by the Contractor which may be specially determined by the Contracting Officer and specifically certified by him in writing to constitute part of the actual cost of the work required under

Upon the termination of this contract the Contractor agrees to arrange for the delivery of all non-expended materials, supplies, apparatus, equipment and other articles

for the cost of which it has been reimbursed by the Government,

to such department, bureau, agency or instrumentality of the United States of America as the Contracting Officer or his authorized representative may designate, costs of transportation to be paid by the Government, or, if requested by the Contracting Officer or his authorized representative, to sell such non-expended materials, supplies, apparatus, equipment or other articles at public or private sale and deliver the proceeds, less costs of the sale, to the Government; Provided, That the Contractor shall be given the first opportunity and refusal to purchase, lease or otherwise use the non-expended materials, supplies, apparatus, equipment or other articles upon terms to be agreed upon with the Contracting Officer. It is understood and agreed that in the event of a public sale in accordance with the provisions hereof, the Contractor may acquire such non-expended materials, supplies, apparatus, equipment or other articles by paying to the Government an amount equal to the highest outside bid at such sale without any deduction for the costs of the sale. In any event the Contractor shall have the option, which shall be exercised by notice in writing to the Contracting Officer within one month from the date of the Contractor's final report, to purchase such non-expended materials, supplies, apparatus, equipment or other articles upon paying the Government an amount equal to the cost of reproduction new less depreciation.

Any non-expended materials, supplies, apparatus, equipment, or other articles, the disposition of which is governed by the provisions of Par. No. hereof, shall be held at the Contractor's risk during the term of this contract and any renewals thereof, and in the event of the loss, theft or destruction of all or any part of such materials, supplies, apparatus, equipment or other articles replacements shall be made promptly by the Contractor at its own expense, which replacements shall be subject to the same terms and conditions as the original materials, supplies, apparatus, equipment or other articles so replaced.

(a) The contractor hereby grants to the Government of the United States an irrevocable option to purchase a non-exclusive license or licenses, subject to the payment of royalties, to make, have made, and use, for military, naval, and national defense purposes, and to sell in accordance with law, material, and to use processes, under all United States patents and applications for patents owned or controlled by the contractor covering inventions heretofore developed and actually or constructively reduced to practice and concerned with the subject matter of this contract. Any such license shall be granted upon reasonable terms subject to negotiation at the time the Government may desire to exercise its option hereunder.

(b) The contractor agrees to and does hereby, in consideration of the premises and in consideration of payments to be made by the Government under this contract, grant unto the Government a non-exclusive, irrevocable, royalty-free license, to make, have made, and use, for military, naval, and national defense purposes, and to sell or otherwise dispose of in accordance with law, material, and to use processes, under all inventions made in carrying out the work contemplated by this contract, including all inventions [exclusive of inventions covered by subparagraph (a)] which for the first time were actually or constructively reduced to practice as a result of the work contemplated by this contract, whether patented or unpatented. The contractor agrees to make to the Government, prior to the final settlement under this contract, a complete disclosure of all inventions made in carrying out the work contemplated by this contract and to designate in writing which of the said inventions have been or will be covered by applications for patents filed or caused to be filed by the contractor. The contractor shall have the right, upon notification by the Government, to elect whether it or the Government shall file applications for patents on inventions in addition to those designated by the contractor as aforesaid.

(c) As to all such inventions that are not covered by applications for patents as specified in subparagraph (b) the contractor agrees that the Government shall have the right, at the Government's expense, to file, prosecute, and act upon applications for patents thereon, and the contractor shall secure the execution of the necessary papers and do all things requisite to protect the Government's interest in prosecuting such applications to a final issue. When an application for patent is filed by the Government as aforesaid, all right, title, and interest in and under the patent shall be assigned to the Government by the contractor except that the contractor may retain a non-exclusive license non-transferable except to an assignee of the entire business to which said license is appurtenant.

(d) The contractor covenants that he has not entered into and will not enter into any arrangement to evade the intent of this Article for the Government to obtain without further payment a non-exclusive license to patents, applications for patents and inventions as called for in subparagraph (b) above.

(e) It is agreed that the execution of this contract shall not constitute a waiver of any rights the Government may have under patents or applications for patents.

The Contractor agrees never to disclose any information concerning this contract or obtained as a result of the work called for in Par. No. hereof to any person, except employees assigned to such work, without the written consent of the Contracting Officer or his authorized representative.

The Contractor agrees that it will immediately submit a confidential report to the Contracting Officer whenever, for any cause, it has reason to believe that an active danger of espionage or sabotage exists at the site of any of the work called for in Par. No. hereof. This report shall contain complete information relative to the reasons which cause the Contractor to be apprehensive of such danger.

The Contractor agrees that it will, whenever requested by the Contracting Officer or his authorized representative, report to the Contracting Officer the citizenship, country of birth, or alien status of any or all of its employees at the site of, or having access to, any of the work called for in Par. No. hereof.

The Contractor agrees that it will refuse to employ on, and will exclude from the site of, any of the work called for in Par. No. hereof, any person or persons designated by the Contracting Officer or his authorized representative for cause as undesirable to have access to such work. The Contractor further agrees that it will, upon request of the Contracting Officer or his authorized representative, discharge or transfer, and thereafter exclude from the site of such work, any person or persons already employed, who may be designated by the Contracting Officer or his authorized representative for cause as undesirable to have access to such work.

The Contractor agrees at all reasonable times to permit the Contracting Officer and his authorized representatives to visit and inspect the work called for in Par. No. hereof, and to report the progress of such work from time to time upon request of the Contracting Officer or his authorized representative.

No Member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

The term "Contracting Officer" as used herein shall include the duly authorized successor of the Contracting Officer and any officer designated to act in the event of their absence or inability to act.

If, at any time, the Contracting Officer is of the opinion that the progress of the work called for in Par. No. hereof indicates that such work cannot profitably be carried to conclusion, the Government shall have the right to terminate this agreement upon thirty days' notice in writing from the Contracting Officer to the Contractor. In the event that this agreement shall be so terminated, the Government agrees to indemnify the Contractor against loss upon any outstanding commitments, including those for personnel, which the Contractor may have made by reason of the work called for in Par. No. hereof, and which the Contractor is unable to cancel, provided however, that in no event shall the maximum amount payable under this paragraph exceed the total amount payable under Par. No. hereof, less any amounts actually paid to the Contractor under that paragraph prior to notice of termination. Upon receipt of the notice of termination herein provided, the Contractor agrees to exercise all reasonable diligence to obtain the cancellation of any outstanding commitments which it has.

IN WITNESS WHEREOF, the Government and the Contractor have caused this agreement to be signed and sealed, intending to be legally bound thereby.

THE UNITED STATES OF AMERICA

Witnesses:

BY _____ (SEAL)

Executive Secretary, Office of
Scientific Research and Development
(Contracting Officer)

BY _____ (SEAL)

I,

certify that

I am the

secretary of the corporation named as contractor herein;

that

who signed this contract on behalf of the contractor, was

then

of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

(Corporate)
(Seal ...)

Appendix 2

Specimen Contract

AGREEMENT COVERING COOPERATIVE ROAD INVESTIGATIONS

THIS AGREEMENT, made this 5th day of May, one thousand nine hundred and forty-one, by and between the National Academy of Sciences, a corporation duly organized and existing by Act of Congress, hereinafter called the Academy, party of the first part, contracting in respect to the activities of its agency known as the National Research Council, hereinafter called the Council, and the United States of America, by the Federal Works Administrator, hereinafter called the Administrator, party of the second part.

WHEREAS, the parties hereto desire to make cooperative investigations of the economical and physical character of road materials, to conduct field experiments with respect thereto, to make studies and investigations in road design, for the purposes, and in the manner, and upon the terms and conditions hereinafter expressed, and to coordinate the activities and the results of tests of the various research agencies of the United States to the end that principles may be formulated for application to the economical design and administration of highways.

AND WHEREAS, the financial support for this project must come largely from subscriptions from the agencies cooperating with the said Council.

NOW, THEREFORE, subject to the limitations that neither the Academy nor the Council shall be obligated for any expenditures, for the purposes herein set forth, beyond the total amount of subscriptions received by the Council for said purposes, to which end the Council reserves the right to appoint from time to time an auditor satisfactory to the Administrator and to the Academy to audit and report upon the expenditures involved in this contract, such reports to be duly submitted to the Administrator and to the Academy, it is mutually agreed by and between the parties hereto, as follows:

(1) That the Council shall furnish and maintain a Highway Research Board, composed of representatives of national organizations and others interested in the design and construction of roads, administration of highway systems, and the economics of transport on highways.

(2) That the Council shall appoint an Engineer as Director of the Board provided for in the preceding paragraph, and that such Director shall be an engineer who is an expert in highway matters; that the Council shall provide said Director with such a staff of competent assistants as may be necessary efficiently to carry on the work contemplated by this agreement, and that said Council shall provide offices and other facilities for enabling the said Board and its assistants properly to conduct the investigative work outlined herein.

(3) That the Council, through the said Board, shall develop a national program for highway research, and shall use its best efforts to coordinate the work of the various research agencies of the United States thereto, for the promotion of economy and improvement in the construction, administration, and maintenance of highways, and for the determination of problems of economics relating thereto.

(4) That the Council, through the said Board, shall collect the information on highway research provided for herein, whether the same be in progress, completed, or proposed, and shall make such information available generally to governmental and other bodies, as well as individuals, interested in highway construction and transport, but it is agreed between the parties hereto that such information shall not be given to the general public by the Council without securing the approval of the Administrator in advance.

(5) That the Council shall render to the Public Roads Administration, Federal Works Agency, monthly and other reports, and shall, upon request, submit special written statements giving complete information and advice concerning the conduct of the highway research work provided for hereunder and the results obtained and the principles established thereby.

(6) That the Administrator will, insofar as he can conveniently do so, furnish the services of competent engineers to consult with, give advice to, and aid the Council in carrying on the cooperative undertaking covered by this agreement with a view to have such investigative work terminate successfully.

(7) That the Administrator shall, insofar as he considers it advisable, furnish the Council such information as may be collected from time to time by the Public Roads Administration of the Federal Works Agency relating to the construction and operation of highways which may be useful in the conduct of the cooperative project provided for herein.

(8) That all expenses incurred by the Council in furnishing engineers and other employees, including all office and other facilities, and expenses of travel, shall be paid by the Academy, and all expenses incurred by the Administrator along the same lines shall be paid by the Administrator; provided, that the Administrator shall contribute and pay, out of the appropriation, "Federal Aid Highway System, Administrative Fund," to the Academy for the use of the Council the sum of \$20,000.00 during the fiscal year ending June 30, 1942 toward defraying expenses incurred by the Council in carrying on said cooperative work, and that said sum shall be paid to the Academy in twelve monthly payments, such payments to be made by the Administrator at the end of each month upon the submission of vouchers therefor by the Academy; provided further, that all expenses incurred by the Council in carrying on said cooperative work in excess of \$20,000.00 during the fiscal year ending June 30, 1942, shall be paid by the Academy, it being understood and agreed that the maximum liability of the Administrator to make payments to the Academy hereunder, in furtherance of the cooperative undertaking, shall in no case exceed the sum of \$20,000.00 during said fiscal year.

(9) No member of or delegate to Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit to arise therefrom. Nothing, however, herein contained shall be construed to extend to any incorporated company, if the agreement be for the general benefit of such corporation or company.

(10) That this agreement shall take effect on the first day of July, one thousand nine hundred and forty-one, and expire on the thirtieth day of June, one thousand nine hundred and forty-two, subject, however, to renewal thereafter from year to year upon the same terms and conditions by mutual agreement of the parties thereto.

Provided, that each of the parties hereto shall notify the other party of its desire for and consent to such renewal at least sixty days prior to the date of the expiration of this contract.

IN WITNESS WHEREOF, the said National Academy of Sciences has caused its name to be signed by its President, and its corporate seal to be hereunto affixed, attested by its Executive Secretary, and the said United States of America has caused its name to be signed by the Federal Works Administrator, and the seal of the Federal Works Agency to be hereunto affixed, the said Academy on the day and year first above written, and the said United States of America, on the 15th day of May, 1941.

NATIONAL ACADEMY OF SCIENCES

By _____
President

(SEAL)

Witness to the signature of the party of the

first part _____
Executive Secretary
National Academy of Sciences

NATIONAL RESEARCH COUNCIL

By _____
Chairman

UNITED STATES OF AMERICA

By _____
Federal Works Administrator

Witness to the signature of the party of the

second part _____

(SEAL)

Appendix 3

Specimen Contract of the Civil Aeronautics AdministrationAGREEMENT COVERING STUDIES AND RESEARCHES ON QUALIFICATIONS
OF AIRCRAFT PILOTS

* * * * *

THIS AGREEMENT, made this First day of July, One Thousand Nine Hundred and Forty-one, by and between the National Academy of Sciences, a corporation duly organized and existing by Act of Congress, hereinafter called the "Academy", party of the first part, contracting with respect to the activities of its agency known as the National Research Council, hereinafter called the "Council", and the United States of America, Civil Aeronautics Administration, hereinafter called the "Administration", party of the second part.

WHEREAS, the Administration has requested the Academy and the Council to undertake investigations as to the most desirable qualifications of aircraft pilots; to conduct experiments in schools, colleges, and universities with respect thereto; to make studies and investigations in the selection and training of civilian pilots for the purposes and in the manner, and upon the terms and conditions hereinafter expressed; and to coordinate the activities and the results of tests of the various research agencies of the United States,

AND WHEREAS, if this project is to be carried out the financial support therefor must come from the Administration,

NOW, THEREFORE, it is mutually agreed by and between the parties hereto, as follows:

(1) That the Council shall furnish and maintain a Committee advisory to the Council in this undertaking on the selection and training of civilian pilots, composed of representatives of colleges and universities, representatives of agencies of the Government concerned with aviation, and others interested in qualifications of aircraft pilots;

(2) That the Council shall appoint an Executive Sub-committee composed of persons trained in research and sciences bearing upon the qualifications of aircraft pilots; that the Council shall provide said Executive Sub-committee with such a staff of competent research assistants as may be necessary efficiently to carry on the work contemplated by this agreement;

(3) That the Council, through the said Executive Sub-committee, shall develop a national program for research in the selection and training of civilian pilots, and shall use its best efforts to coordinate the work of the various research agencies of the United States with a view to accomplishing this end;

(4) That the Council shall collect the information on civilian pilot research provided for herein, and shall transmit such information to the Administration;

(5) That the Council shall, upon request, render to the Administration reports and special written statements giving complete information and advice concerning the conduct of the research work provided for hereunder, the results obtained, and the principles established thereby;

(6) That the Administration may furnish the services of a representative and other technical assistants to consult with, give advice to, and aid the Council in carrying on the undertaking covered by this agreement with a view to the successful termination of such investigation work;

(7) That the Administration shall, in so far as it considers such action advisable, furnish the Council such information as it may collect from time to time relating to the qualifications of aircraft pilots and as may be useful in the conduct of the cooperative project provided for herein;

(8) The Administration shall pay out of any funds available for the administration of the Civilian Pilot Training Act of 1939 to the Academy for the use of the Council the sum of \$150,000 during the fiscal year ending June 30, 1942, and said sum shall be paid to the Academy in twelve monthly payments, such payments to be made by the Administration at the end of each month upon the submission of vouchers therefor by the Academy;

(9) No member of, or delegate to, Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit to arise therefrom. However, nothing herein contained shall be construed to extend to any college or university or research laboratory engaged in investigations for the Council;

(10) That this agreement shall be effective from the First day of July, One Thousand Nine Hundred and Forty-one, and shall expire on the Thirtieth day of June, One Thousand Nine Hundred and Forty-two, subject to renewal thereafter from year to year upon the same terms and conditions by mutual agreement of the parties hereto: Provided, that each of the parties hereto shall notify the other party of its desire for, and consent to, such renewal at least 60 days prior to the date of the expiration of this agreement;

(11) This agreement shall be subject to cancellation at the option of either party hereto upon 30 days' notice in writing to the other. In the event that this agreement shall be so terminated, the Administration agrees to indemnify the Academy against loss upon any outstanding commitments, including those for personnel, which the Academy may have made by reason of the work called for in this agreement, and which the Academy is unable to cancel, provided however, that in no event shall the maximum amount payable under this paragraph exceed the total amount payable under

paragraph No. 8 hereof, less any amounts actually paid to the Academy under that paragraph prior to notice of termination. Upon receipt of the notice of termination herein provided, the Academy agrees to exercise all reasonable diligence to obtain the cancellation of any outstanding commitments which it has;

IN WITNESS WHEREOF, the said National Academy of Sciences has caused its name to be signed by its President and its corporate seal to be hereunto affixed, attested by its Secretary, and the said United States of America has caused its name to be signed by the Administrator of Civil Aeronautics, and the seal of the Civil Aeronautics Administration to be hereunto affixed.

(S E A L)

NATIONAL ACADEMY OF SCIENCES

By _____
President

ATTEST:

NATIONAL RESEARCH COUNCIL

By _____
Chairman

ATTEST:

UNITED STATES OF AMERICA

By _____
Administrator of Civil
Aeronautics

(S E A L)

Appendix 4

Specimen Contract of the Civil Aeronautics AdministrationAGREEMENT COVERING RESEARCH WITH RESPECT TO AERONAUTICAL
STUDIES PREPARATORY FOR FLIGHT TRAINING

* * * * *

THIS AGREEMENT, Made this 28th day of February, One Thousand Nine Hundred and Forty-two, by and between the Trustees of Columbia University in the City of New York, hereinafter referred to as the "University", party of the first part, and the United States of America, Civil Aeronautics Administration, hereinafter referred to as the "Administration", party of the second part.

W I T N E S S E T H:

WHEREAS, the Administration has requested the University to undertake research for the purpose of determining the subjects of aeronautical study necessary for the most effective preparation for flight training, to prepare textbook materials, including maps, globes and other educational devices, in such subjects of study, to recommend proper methods of teaching such subjects, and to provide other expert consultative advice;

AND WHEREAS, if this project is to be carried out the cost thereof must be borne by the Administration;

NOW, THEREFORE, it is mutually agreed by and between the parties hereto as follows:

(1) That the University shall develop a national program for research directed toward determining the subjects of aeronautical study necessary for the most effective preparation for flight training and shall use its best efforts to coordinate the work of the various appropriate research agencies of the United States with a view to accomplishing this end;

(2) That the University shall collect the information developed by the research provided for herein, shall prepare textbook materials, including maps, globes and other educational devices, for use in teaching the subjects of aeronautical study determined to be necessary for the most effective preparation for flight training, and shall transmit such information and material to the Administration;

(3) That the University shall make recommendations to the Administration as to the methods of teaching such subjects of study and shall provide the Administration with other expert consultative advice upon request;

(4) That the University shall, upon request, render to the Administration reports and special written statements giving complete information and advice concerning the conduct of the research work provided for herein, results obtained, and the principles established thereby;

(5) That the Administration may furnish the services of a representative and other technical assistants to consult with, give advice to, and aid the University in carrying on the undertaking covered by this Agreement with a view to the successful termination of such undertaking;

(6) That the Administration shall, insofar as it considers such action advisable, furnish the University such information as it may collect from time to time relating to the undertaking covered by this agreement;

(7) That the University, in carrying out the provisions of this Agreement, shall not discriminate against any worker because of race, creed, color or national origin;

(8) That the Administration shall pay out of any funds available for the administration of the Civilian Pilot Training Act of 1939 to the University the sum of \$20,000 during the fiscal year ending June 30, 1942, and said sum shall be paid to the University in four monthly payments: Provided, That no part of said \$20,000 shall constitute compensation to the University, but shall be the maximum amount of cost which the University may incur in the performance of services rendered pursuant to this Agreement. The monthly payments provided for herein shall be made by the Administration at the end of each month upon submission of vouchers therefor by the University, which vouchers shall contain a certified statement that all funds claimed thereon are to defray actual costs of the University and will not constitute compensation to the University.

(9) No member of, or Delegate to, Congress or Resident Commissioner shall be admitted to any share or part of this Agreement or to any benefit to arise therefrom. However, nothing herein contained shall be construed to extend to any college or university or research laboratory engaged in investigations for the University;

(10) That this Agreement shall be effective from the 28th day of February, One Thousand Nine Hundred and Forty-two, and shall expire on the Thirtieth day of June, One Thousand Nine Hundred and Forty-two, subject to renewal thereafter for periods of four months upon the same terms and conditions by mutual agreement of the parties hereto: Provided, That each of the parties hereto shall notify the other party of its desire for, and consent to, such renewal at least thirty days prior to the date of the expiration of this Agreement;

(11) This Agreement shall be subject to cancellation at the option of either party hereto upon thirty days' notice in writing to the other. In the event that this Agreement shall be so terminated, the Administration agrees to indemnify the University against loss upon any outstanding commitments, including those for personnel, which the University may have made by reason of the work called for in this Agreement, and which the University is unable to cancel: Provided, However, that in no event shall the maximum amount payable under this paragraph exceed the total amount payable under paragraph (8) hereof, less any amounts actually paid to the University under that paragraph prior to notice of termination. Upon receipt of the notice of termination herein provided, the University agrees to exercise all reasonable diligence to obtain the cancellation of any outstanding commitments which it has.

IN WITNESS WHEREOF, the said Trustees of Columbia University in the City of New York has caused its name to be signed by its Assistant Treasurer and Associate Clerk and its corporate seal to be hereunto affixed, attested by its Associate Clerk, and the said United States of America has caused its name to be signed by the Acting Administrator of the Civil Aeronautics, and the Seal of the Civil Aeronautics Administration to be hereunto affixed.

TRUSTEES OF COLUMBIA UNIVERSITY IN THE
CITY OF NEW YORK

(SEAL)

By _____
Assistant Treasurer

ATTEST:

Associate Clerk

Asst. Associate Clerk

UNITED STATES OF AMERICA

(SEAL)

BY _____
Acting Administrator of Civil Aeronautics

METHOD OF PAYMENTS TO COLUMBIA UNIVERSITY UNDER THE
CAA-COLUMBIA UNIVERSITY CONTRACT OF FEBRUARY 28, 1942

Plan No. 3

The contract of February 28, 1942, between the Trustees of Columbia University in the City of New York and the Civil Aeronautics Administration on research in subjects of aeronautical study has been signed by Mr. Charles I. Stanton, Acting Administrator of the Civil Aeronautics Administration and is being forwarded to Mr. Frank D. Fackenthal, Provost of Columbia University.

With respect to payments in accordance with the terms of the contract, the following arrangements should be observed:

At the end of each of four months the University should submit through this office to the Civil Aeronautics Administration a statement in triplicate, showing the amount of actual expenditures made pursuant to the contract for the period covered by the statement.

A separate notarized schedule should be submitted in triplicate showing:

- a. Voucher identification;
- b. Amount paid;
- c. Date of payment
- d. Payee
- e. Object of expenditure
- f. Any other essential information used
by the Columbia University voucher
system.

Both the request for payment and the schedule should include a statement to the effect that all expenditures were made pursuant to the provisions of the contract and that such expenditures were for the defrayal of costs and were not compensation to the University.

Payments will be made accordingly.

All vouchers should be permanently retained and should be readily accessible if future examination is required.

3/10/42

Appendix 5

Office of the Coordinator of Inter-American Affairs

Specimen Project Authorization

Approved Copy

PROJECT AUTHORIZATION

Short Title: Study of Teaching Materials on the Other Americas.

Proposed by: Science and Education Division - Education

Program Authority: The program authority of the Education Section includes responsibility for "the development of interest and activities in Inter-American affairs among the students in educational institutions in the United States." In furthering this objective, it is imperative that we have complete and accurate information as to the quantity and quality of instructional materials now being used in the schools of the United States.

Auspices: The American Council on Education, an established organization representative of all the major educational groups in the United States. The chief administrative officer of the American Council on Education is Dr. George F. Zook, President. The Office of the Council is located at 744 Jackson Place, Washington, D. C.

Description: It is essential that any program to improve relations among the American Republics recognize the importance of furnishing the youth of the Americas complete, accurate and unbiased information about each of the other Republics. This information will come from a variety of sources but perhaps the most important single source is that of textbooks and visual and audio teaching materials used in the schools. The power of textbooks and teaching materials to stamp impressions of lasting force upon the mind of youth has long been recognized in American education.

In order that there may be detailed information concerning the quantity and quality of instructional materials on inter-American subjects being used in the United States schools, the Education Section recommends that a survey of textbooks and teaching materials be undertaken immediately.

The survey would be guided by an advisory committee of ten, so chosen as to represent various fields of knowledge or areas of education such as History and Curriculum Construction, and various national societies such as the American Historical Association and the Society for Curriculum Study. One or more members would be chosen upon the basis of a thorough knowledge of the other Americas. At least one member of the committee would be a specialist in visual education.

Working under each of the subject-matter specialists would be a sub-committee which would examine the materials and suggest recommendations to the advisory committee. Sub-committees would need staff assistants. Many of the sub-committees might carry on their work in the universities to which the specialists are attached.

An item for travel has been included in the budget to provide necessary travel for the Director and Assistant Director to make frequent trips to the centers of research and for subject specialists and consultants to attend staff meetings in some central location.

The work of the subcommittees would be under the supervision of a director of the study, and Assistant Director who would probably be a resident of one of the other American Republics now residing in the United States, and a staff.

The selection of the director and of members of the advisory committee would be made by the sponsoring agency.

It is expected that each subcommittee would produce a monograph or series of monographs concerning treatment of the other Americas in teaching materials in its own field.

A final report would be issued and widely circulated to leading school systems, schools of education, subject-matter scholars, prominent educators in the other Americas, and publishers. This report would contain a brief summary of the findings of each subcommittee and the recommendations of the entire committee for the improvement of teaching materials.

The following results should accrue from this project:

- (1) Authoritative statements on contents of current teaching materials relative to the Americas.
- (2) Guides to textbook publishers and manufacturers of visual aids for the preparation of new materials.
- (3) Bases for planning a more comprehensive educational program for the schools of the United States in studying the other Americas.
- (4) Guides to teachers examining materials for classroom use.
- (5) Bases for compilation of annotated bibliographies.

It is hoped that this proposed study would inspire the Ministers of Education in the other American Republics to attempt similar surveys of the materials used in their schools relative to the United States.

The work of the subcommittees is to be completed with a period of six months from the date of the contract and the printed reports are to be distributed within a period of nine months from the date of the contract.

This project was approved in principle by the Education Advisory Committee, April 24, 1942.

Objective: A thorough study of currently used teaching materials in inter-American subjects should lead to improved textbooks and teaching aids for use in the schools of the United States which will increase the understanding of our students of the other American Republics, a very important step in developing better inter-American relations, not only in prosecuting the war but in establishing stronger Hemisphere ties in peace.

Cost: Not to exceed \$37,777 distributed as follows:

Director, six months @ \$6,500	\$3,250
Assistant Director, three months @ \$3,800	950
Fees for consultants on the other Americas	1,000
Fees for ten subject-matter specialists	10,000
15 graduate assistants, 3 months each @ \$1,500	5,625
Secretary, three months @ \$1,800	450
Bi-lingual Secretary, three months @ \$1,800	450
Eight stenographers, three months each @ \$1,440	2,880
Purchase of textbooks and teaching materials	2,500
Rent, furniture, facilities, supplies, postage, etc.	750
Travel	2,000
Publications and Reports	5,000
*Administrative expense - American Council on Education	922
Contingent	2,000
Total	\$37,777

Recommended Action: Action formally to approve the project is desired, and the following resolution is accordingly suggested.

"Authorization is given to enter into a contract with the American Council on Education in a sum not to exceed \$37,777 to reimburse the Council for its expenses in conducting a survey of teaching materials currently used in the schools of the United States in the area of instruction in inter-American subjects, and in publishing and distributing a report thereon."

Authorization: Resolution adopted as above June 4, 1942

Instructions: This project to be cleared with the Department of State by the Director of the Science and Education Division, the Legal Division to obtain financial and legal clearances and prepare the necessary documents for execution.

Date:

* This procedure for taking care of additional administrative expenses incurred by the American Council on Education in sponsoring projects for the Office of Coordinator of Inter-American Affairs was approved by the Policy Committee, May 21, 1942.

Appendix 6

Specimen Contract of the Office of the Coordinator of Inter-American Affairs

Contract No. OEMer-173

Memorandum of Agreement, made this 14th day of March, 1942 between the United States of America, by the Coordinator of Inter-American Affairs (hereinafter called "the Coordinator") and the American Council of Learned Societies, 1219 16th St., N.W., Washington, D. C. (hereinafter called "the Contractor").

WHEREAS, the Coordinator is charged by law with the duty of formulating and executing a program which, by the effective use of government and private facilities, will further the national defense and war effort of the United States of America and will strengthen the bonds between the nations of the Western Hemisphere; and

WHEREAS, the Coordinator has determined that, as a part of such program, provisions should be made for a study of cartographical activities in the Western Hemisphere; and

WHEREAS, the Contractor has indicated its willingness and ability to carry out such project.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH:

1. The Contractor agrees (a) to assist in the completion of the summary report on cartographical activities in the United States now being undertaken by the Committee on Cartography of the Pan American Institute of Geography and History, in making an exploratory study of approximately three months' duration under the direction of such person or persons as may be approved by the Coordinator or his duly authorized representative and in accordance with an itinerary to be approved by the Coordinator or his duly authorized representative, or surveying, mapping, and charting programs in the other American Republics. It is understood and agreed that such study shall include the collection of specimen charts, maps and materials.

2. The Coordinator agrees to reimburse the Contractor from time to time for its expenses in carrying out the activities described in paragraph 1 hereof including, but not by way of limitation, amounts paid by it for (a) salary of a traveling executive secretary, (b) travel, maintenance and incidental expenses of members of the group during such times as they are away from their homes and engaged in making the study, (c) transportation of materials, (d) secretarial assistance, office supplies, postage, and telephone, telegraph and cable charges, (e) supplies and materials, and (f) photographic equipment, provided, however, that the maximum total amount of such reimbursement payments shall not exceed \$5,000.00 in the aggregate. Reimbursement payments shall be made upon public vouchers prepared by the Contractor and approved by the Coordinator or his duly authorized representative.

3. It is understood and agreed that all photographic equipment purchased by the Contractor with funds of the United States of America shall become the property of the United States of America upon the conclusion of the survey tour.

4. The Contractor agrees to submit to the Coordinator or his duly authorized representative a monthly progress report on its activities under this agreement, and the Contractor further agrees, as soon as may be practicable upon the conclusion of the survey tour, to prepare and submit to the Coordinator or his duly authorized representative a final report, in such detail as may be requested by the Coordinator or his duly authorized representative, showing the results of the survey tour and its value in connection with inter-American activities.

5. It is understood and agreed that if the Coordinator deems it in the best interest of the United States to terminate this agreement, the Coordinator may terminate it by giving the Contractor thirty days' notice in writing. In the event that the agreement is so terminated by the Coordinator, the Coordinator agrees to indemnify the Contractor against loss upon all outstanding commitments which the Contractor has made in carrying out any part of the work called for under this agreement and which the Contractor is unable to cancel, provided, however, that the total amount of such indemnity payment shall not exceed \$5,000.00 less the sum of all payments previously made pursuant to paragraph 2 hereof.

6. The Contractor warrants that it has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage, or contingent fee. Breach of this warranty shall give the Coordinator the right to annul the contract or, in his discretion, to deduce from the contract price or consideration the amount of such commission, percentage, brokerage or contingent fees. This warranty shall not apply to commissions payable by contractors upon contracts or sales secured or made through bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

7. No Member of or Delegate to the Congress of the United States of America and no Resident Commissioner shall be admitted to any share or interest in this agreement or to any benefit to arise thereupon.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals and intend to be legally bound hereby.

U. S. of A. Nelson A. Rockefeller
(Seal)

By (Coordinator of Inter-American Affairs)

American Council of Learned Societies.

By Waldo G. Leland (Seal)
Director

Appendix 7

CONTRACT

WITH RESPECT TO THE PREPARATION OF
A REPORT ON POPULATION ESTIMATES

THIS AGREEMENT, made this first day of June, one thousand nine hundred and forty-two, by and between the President and Trustees of the Miami University, a corporation duly organized and existing under the laws of the State of Ohio, hereafter called the University, acting for the Scripps Foundation of said University, and the National Resources Planning Board, hereafter called the Board, for and on behalf of the United States of America;

WITNESSETH THAT:

WHEREAS, the parties hereto desire to cooperate in the preparation and publication of a report on "Estimates of Future Population in the United States";

Now therefore it is mutually agreed as follows:

1. The University agrees:

- (a) To prepare and deliver to the Board in duplicate, on or before October 1, 1942, a report on "Estimates of Future Population in the United States", to follow in general the plan described in "A Proposal for Revision of Population Estimates in the United States", attached hereto and made a part hereof;
- (b) To give consideration to any modifications of said report which the Board may suggest;
- (c) That said report, upon acceptance by the Board and payment therefor, shall become the property of the Board and may be published in whole or in part by either party at the discretion of the Board; provided that, if prior to October 1, 1943, the Board has not arranged to publish said report, said report may be published by the Scripps Foundation of Miami University, with proper acknowledgment in said report of the Board's contribution to said report, and provided further that no part of the amount payable under this contract shall be used for the publication of said report;

2. The Board agrees:

To pay to the University for the account of the Scripps

Foundation, the sum of six thousand dollars (\$6,000.00) upon delivery to and acceptance by the Board of afore-said report, which said amount shall be full, final and complete payment for said report; provided, however, that partial payments hereunder may be made from time to time as the work progresses, and in such amounts as may be determined by the Director of the Board, upon submission by the Scripps Foundation of reports of progress satisfactory to the Director of the Board and the submission of properly executed vouchers therefor, duly certified by the Director of the Board; provided further, that the total of such partial payments, prior to final acceptance of said report, shall not exceed the sum of fifty-five hundred dollars (5,500.00);

3. No member of, or delegate to Congress, or Resident Commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

Witness

THE PRESIDENT AND TRUSTEES OF THE
MIAMI UNIVERSITY

By

A. H. Upham, President

Witness

W. P. Roudebush, Secretary,
Board of Trustees

June , 1942

NATIONAL RESOURCES PLANNING BOARD

Witness

By

Charles W. Eliot
Director

A PROPOSAL FOR
REVISION OF ESTIMATES OF FUTURE POPULATION
IN THE UNITED STATES

The Scripps Foundation for Research and Population Problems proposes to draft for the National Resources Planning Board a report suitable for publication which will analyze the population data contained in the 1940 census, will revise and will project the population estimates made previously by the Foundation and published as part of the report entitled "The Problems of a Changing Population", issued by the National Resources Committee, May 1938.

These estimates will include data regarding trends of births and deaths, classified as was done in the above mentioned report. It will also include such other analytic material as will aid in interpretation of the estimates.

BUDGET FOR ESTIMATES OF FUTURE POPULATION, 1942

Supervision and interpretation by the Staff of the Scripps Foundation	\$4,000
Statisticians	1,000
Statistical Assistants	6,500
Typing	500
Service on Machines	250
Supplies	100
Miscellaneous	150
	<u>\$12,500</u>

The proposed arrangement with the National Resources Planning Board is that the Board will provide \$6,000 and that the Scripps Foundation will provide the other \$6,500 or as much more as is necessary for completion of the report.

FORM OF THE REPORT

It is estimated that the report as submitted will not be less than 200 typed pages. If the Board desires considerable detail in certain parts of the estimates, it might well run beyond that. Along with the report there will be submitted proposals for graphs which might also occupy a considerable space. If, in the end, it is desired to present data regarding the different elements of the population for which estimates will be made, additional space will be needed.

Appendix 7

Specimen Contract of the National Resources Planning Board

THIS AGREEMENT, made this 30th day of January, one thousand nine hundred and forty-two, by and between the American Library Association, a non-profit corporation duly organized and existing under the laws of the State of Massachusetts, hereinafter called the Association, and the National Resources Planning Board, hereinafter called the Board, for and on behalf of the United States of America;

WITNESSETH:

1. The Association agrees;

(a) To prepare and deliver to the Board in duplicate on or before June 30, 1942, a memorandum on library standards in the United States, to follow in general the plan described in "A Proposal for the Statement of Public Library Standards", attached hereto and made a part hereof;

(b) To give consideration to any modifications of said memorandum which the Board may suggest;

(c) That payment under this contract shall be limited to reimbursement of the necessary expenses incurred by said Association incident to the preparation of the memorandum and that the Association will contribute without cost to the Board, the time and services of its officers and the facilities of its office;

(d) That said memorandum, upon acceptance by the Board and payment therefor shall become the absolute property of the Board and may at the option of the Board be published in whole or in part by either party hereto, provided however, that no part of the amount payable under this contract shall be used for the publication of the memorandum.

2. The Board agrees;

(a) To pay to the Association, for the preparation and delivery of said memorandum, as follows:

Upon the submission monthly of public vouchers itemizing the necessary expenses payable under paragraph 1 (c) hereof, certified to by the Executive Secretary of the Association and approved by the Director of the Board, and upon submission by the Association of reports of progress satisfactory to the Director of the Board, the Board will pay the amounts set forth in such vouchers, provided, that the total of payments hereunder prior to acceptance of said memorandum by the Board shall not

exceed the sum of fifteen hundred (1500) dollars,
and the total amount payable under this contract
and any extension thereof shall not exceed the
sum of two thousand (2000) dollars.

No Member of or Delegate to Congress, or Resident Commissioner shall
be admitted to any share or parts of this contract or to any benefit that
may arise therefrom, but this provision shall not be construed to extend
to this contract if made with a corporation for its general benefit.

Witness

AMERICAN LIBRARY ASSOCIATION

By _____
President

Witness

By _____
Executive Secretary
American Library Association

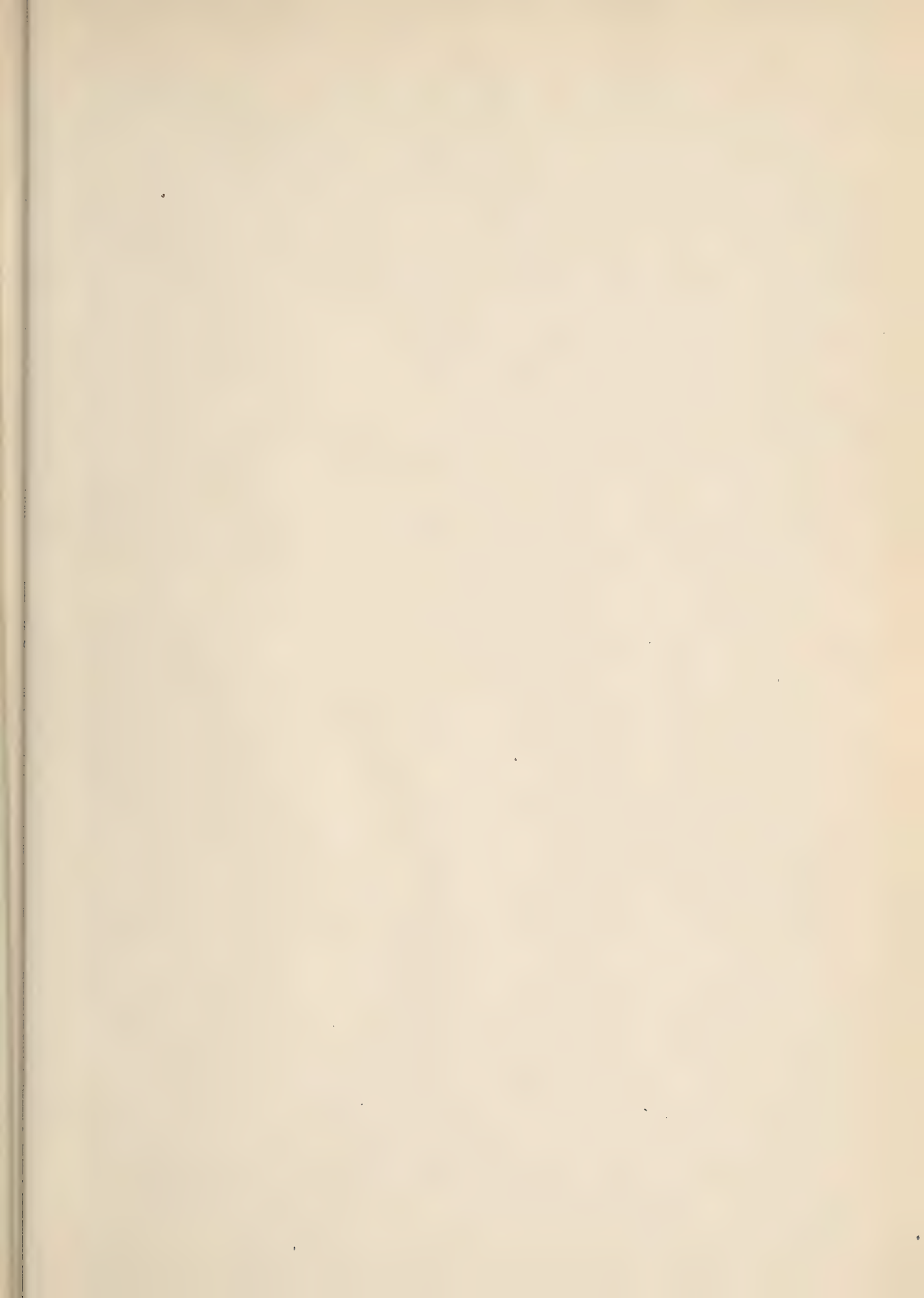
January 30, 1942

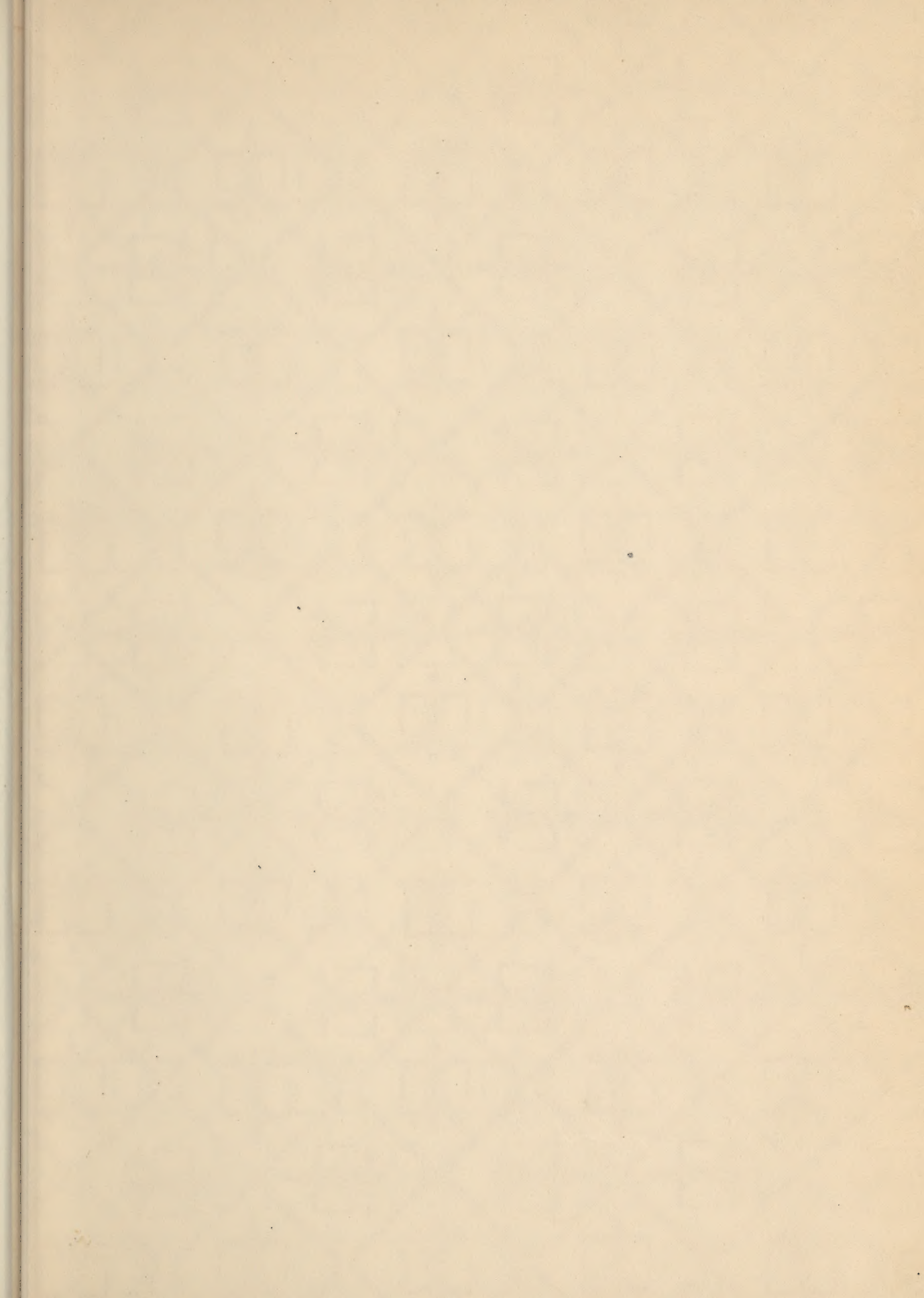
Witness

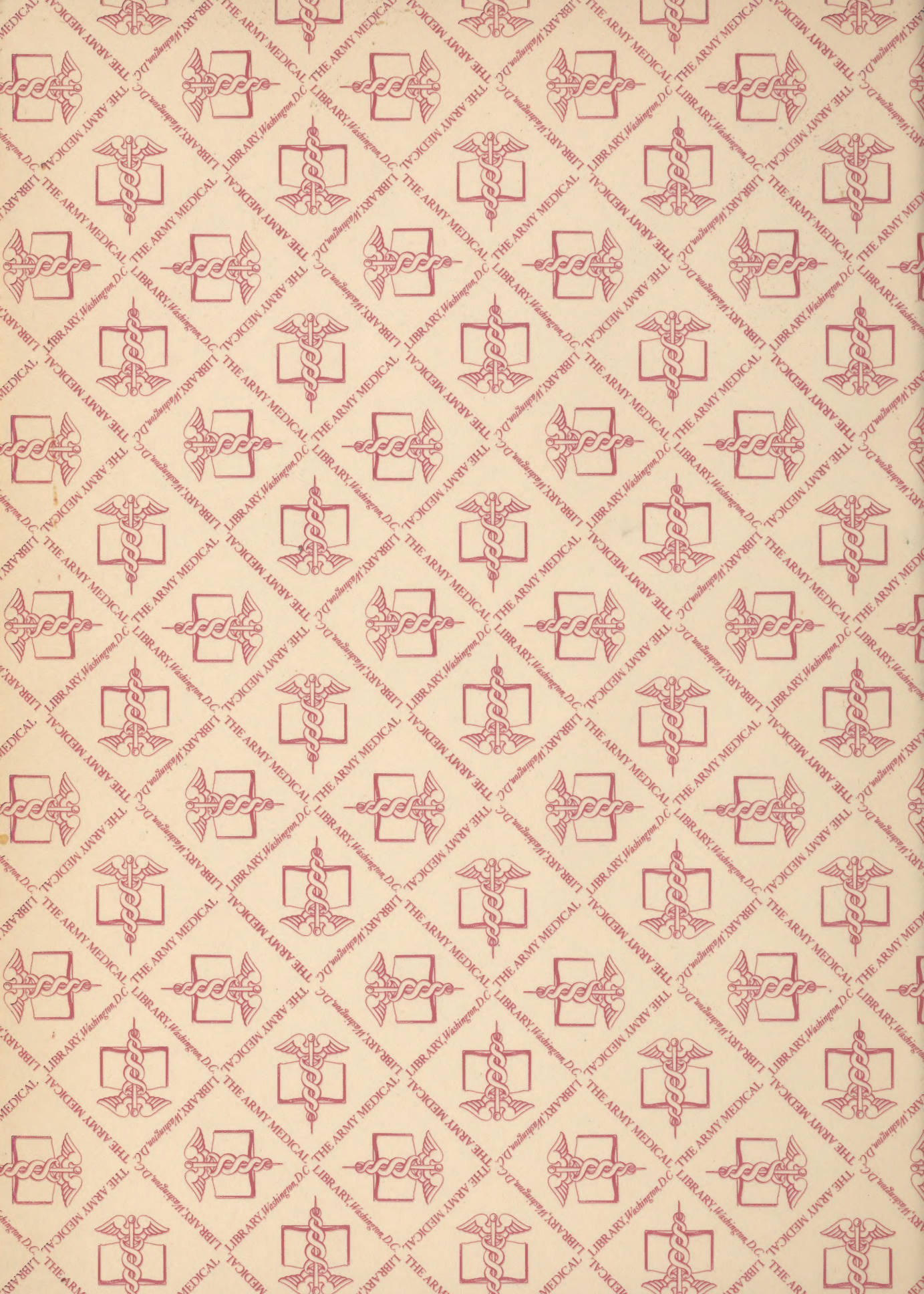
National Resources Planning Board

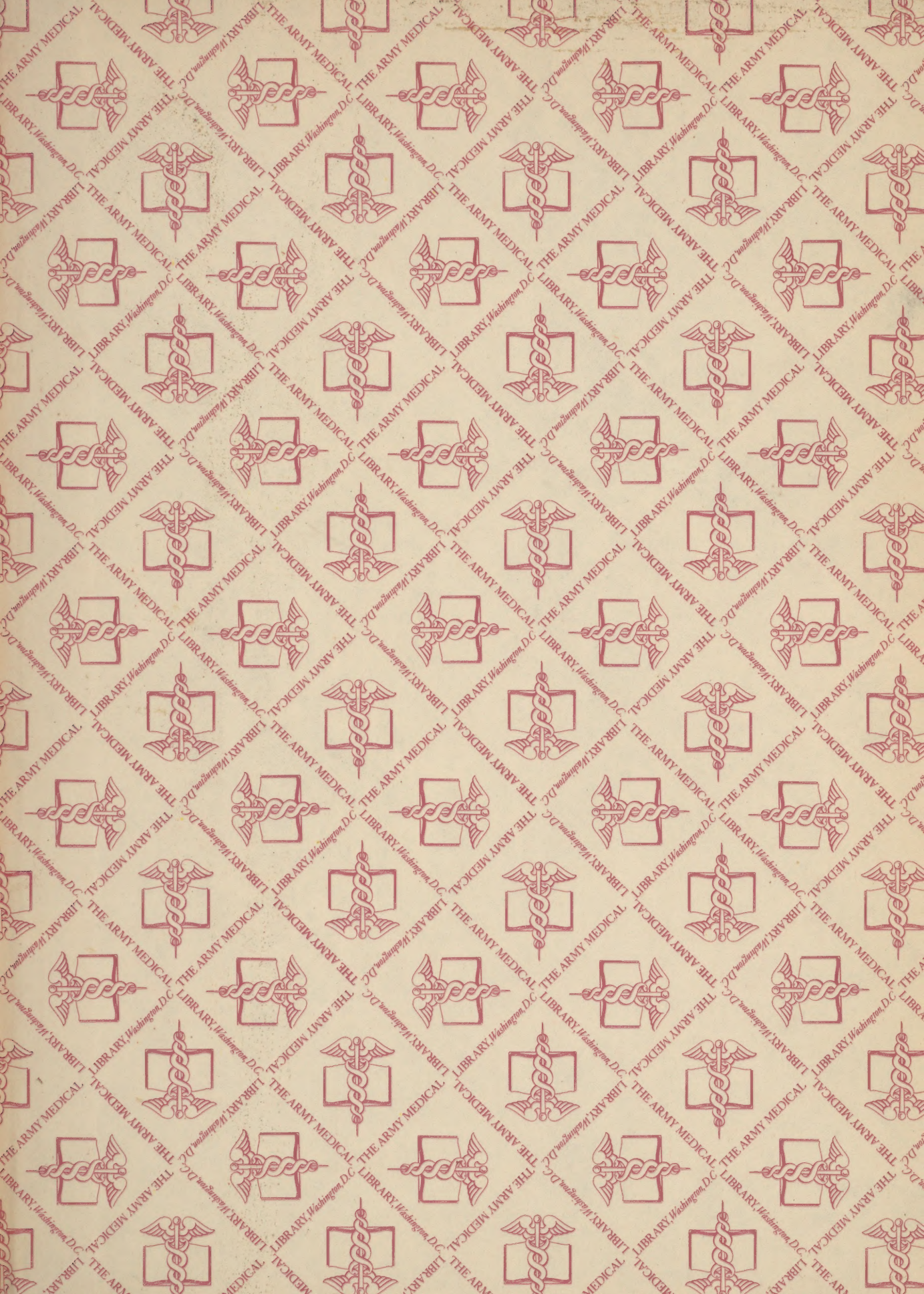
By _____











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